SONY

3-810-817-21

Video Camera Recorder

Operating Instructions

Before operating the unit, please read this manual thoroughly, and retain it for future reference.

Owner's Record

The model and serial numbers are located on the bottom. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. **CCD-TRV** _____ Model No. **AC-V** _____

Serial No. _____ Serial No. _____

Handycam

CCD-TRV81

video Hi8

CCD-TRV81 **Hi 8**

Video 8

CCD-TRV41 **8**

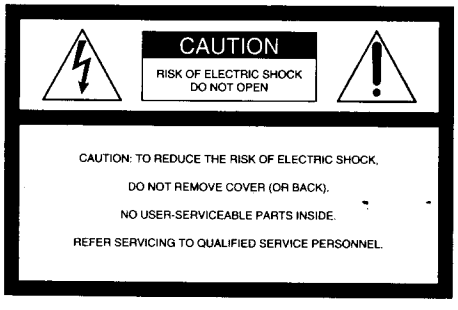
©1996 by Sony Corporation

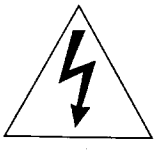
Welcome!

Congratulations on your purchase of this Sony Handycam® camcorder. With your Handycam, you can capture life's precious moments with superior picture and sound quality. Your Handycam is loaded with advanced features, but at the same time it is very easy to use. You will soon be producing home video that you can enjoy for years to come.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

DISPOSAL OF LITHIUM ION BATTERY.

LITHIUM ION BATTERY. DISPOSE OF PROPERLY.

You can return your unwanted lithium ion batteries to your nearest Sony Service Center or Factory Service Center.

Note: In some areas the disposal of lithium ion batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)
For the Sony Factory Service Center nearest you call 416-499-SONY (Canada only)

Caution: Do not handle damaged or leaking lithium ion battery.

For the customers in the U.S.A.

WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

For the customers in CANADA

CAUTION

TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

Table of contents

Before you begin

Using this manual 4
Checking supplied accessories 5

Getting started

Charging and installing the battery pack 6
Inserting a cassette 9

Basic operations

Camera recording 10
Using the zoom feature 12
Shooting with the LCD screen 13
Hints for better shooting 14
Checking the recorded picture 16
Playing back a tape 17
Searching for the end of the picture ... 21

Advanced operations

Using alternative power sources 21
Using the house current 22
Changing the mode settings 24

– for camera recording –

Letting the subject monitor the shot ... 27
Fade-in and Fade-out 28
Using the wide mode function 29
Enjoying picture effect 30
Focusing manually 32
Using the PROGRAM AE function 33
Shooting with backlighting 35
Adjusting the exposure 36
Releasing the STEADY SHOT function 37
Superimposing a title 38
Making your own titles 41
Re-recording a picture in the middle of a recorded tape (CCD-TRV81 only) 42
Recording with the date or time 43
Selecting the START/STOP mode 44
Optimizing the recording condition .. 45

– for playback/editing –

Watching on a TV screen 46
Searching the boundaries of recorded date (CCD-TRV81 only) 47
Returning to a pre-registered position (CCD-TRV81 only) 49
Locating the marking position (CCD-TRV81 only) 50
Writing the RC time code on a recorded tape (CCD-TRV81 only) 54
Editing onto another tape 56
Recording from a VCR or TV 58

Additional information

Changing the lithium battery in the camcorder 60
Resetting the date and time 62
Usable cassettes and playback modes 63
Tips for using the battery pack 64
Maintenance information and precautions 67
Using your camcorder abroad 70
Trouble check 71
Specifications 75
Identifying the parts 76
Warning indicators 83
Index ..... Back cover

Before you begin

Using this manual

The instructions in this manual are for the two models listed below. Before you start reading this manual and operating the unit, check your model number by looking at the bottom of your camcorder. The CCD-TRV81 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV81 only."
As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Types of differences

Model number	CCD-TRV41	CCD-TRV81
System	8	Hi8
Auto Date	●	—
Index	—	●
RC time code	—	●
Data code	—	●

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

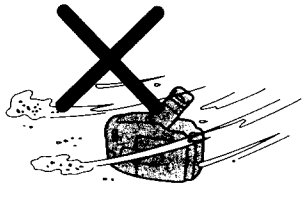
Precaution on copyright

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Precautions on camcorder care

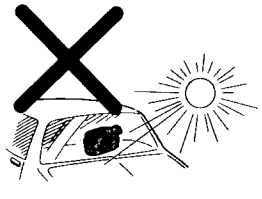
- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].**
- **Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].**
- **Never leave the camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight [c].**

[a]



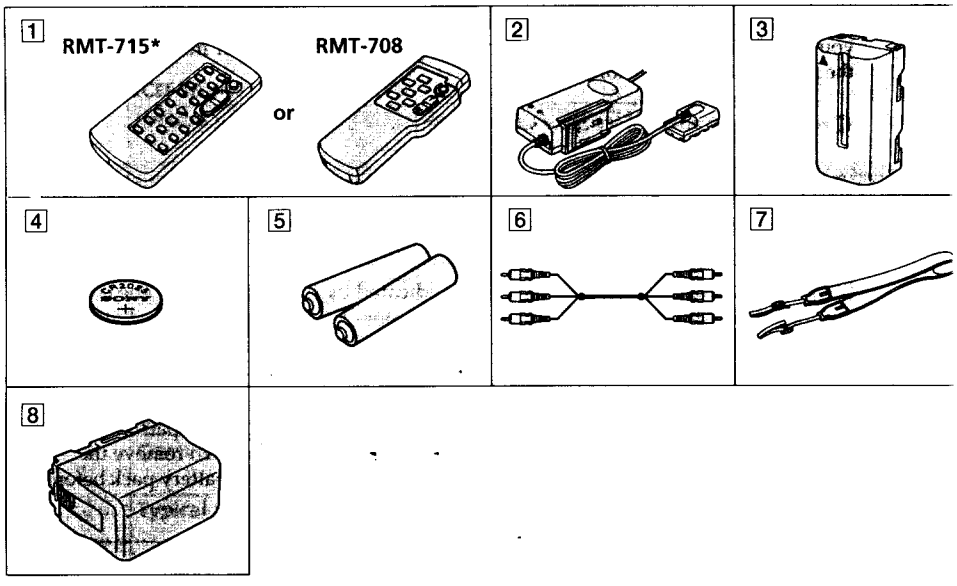
[b]

[c]



Checking supplied accessories

Check that the following accessories are supplied with your camcorder.



1 Wireless Remote Commander (1) (p. 80)
* for Hi8 model

2 AC-V316 AC power adaptor (1) (p. 6, 22)

3 NP-F530 Battery pack (1) (p. 6, 21)

4 CR2025 Lithium Battery (1) (p. 60)
The lithium battery is already installed in your camcorder.

5 Size AA (R6) battery for Remote Commander (2) (p. 81)

6 A/V connecting cable (1) (p. 46)

7 Shoulder strap (1) (p. 79)

8 Battery case (1) (p. 23, 66)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Getting started

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.
This camcorder operates with the "InfoLITHIUM" battery such as NP-F530/F730. If you use any other battery to operate your camcorder, the camcorder may not operate, the battery life may be shorten.

InfoLITHIUM is a trademark of Sony Corporation.

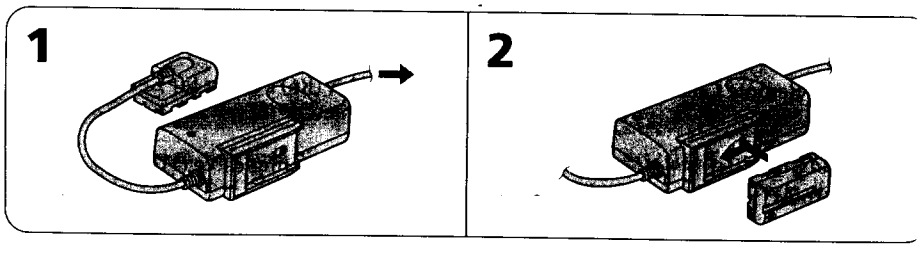
Charging the battery pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the power cord to a wall outlet.

(2) Align the surface of the battery pack indicated by the ▶ mark with the edge o the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour. Unplug the unit from the wall outlet, then remove the battery pack and install it into the camcorder. You can also use the battery pack before is completely charged.



Charging time

Battery pack	NP-F530 (supplied)	NP-F730
Charging time* (min.)	170 (110)	250 (190)

The time required for a normal charge is indicated in parentheses.
* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor. (Lower temperatures require a longer charging time.)

Battery life

Upper numbers are the time when recording with the viewfinder. Lower numbers are the time when recording with the LCD screen. Using both will further reduce recording time.

CCD-TRV41

Battery pack	NP-F530 (supplied)	NP-F730
Continuous recording time*	120 (105) 90 (80)	270 (240) 200 (180)
Typical recording time**	70 (65) 55 (50)	160 (145) 120 (110)
Playing time on LCD	90 (80)	205 (185)

CCD-TRV81

Battery pack	NP-F530 (supplied)	NP-F730
Continuous recording time*	115 (105) 75 (65)	265 (240) 170 (155)
Typical recording time**	70 (65) 45 (40)	160 (145) 100 (95)
Playing time on LCD	70 (65)	170 (150)

Numbers in parentheses indicate the time when you use a normally charged battery. Battery life will be shorter if you use the camcorder in a cold environment.

* Approximate continuous recording time indoors.

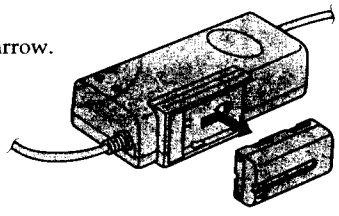
** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Notes on remaining battery time indication during recording

- When you use the InfoLITHIUM battery pack, remaining battery time is displayed the viewfinder or on the LCD screen. However, the indication may not be displayed properly, depending on using conditions and circumstances.
- When you close the LCD panel and open it again, it takes about 2 minutes for the correct remaining time to be displayed.

To remove the battery pack

Slide the battery pack in the direction of the arrow.



Notes on charging the battery pack

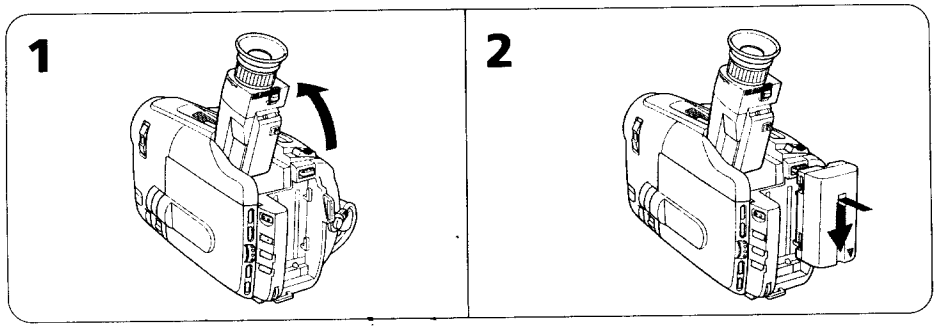
- The CHARGE lamp will remain lit for a while even if the battery pack is removed a the power cord is unplugged after charging the battery pack. This is normal.
- If the CHARGE lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Charging and installing the battery pack

Installing the battery pack

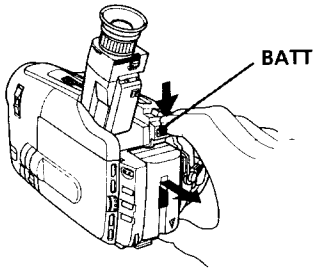
(1) Lift up the viewfinder.

(2) Insert the battery pack in the direction of the ▼ mark on the battery pack. Slide the battery pack down until it catches on the battery release lever and clicks.



To remove the battery pack

While pressing BATT, slide the battery pack in the direction of the arrow.



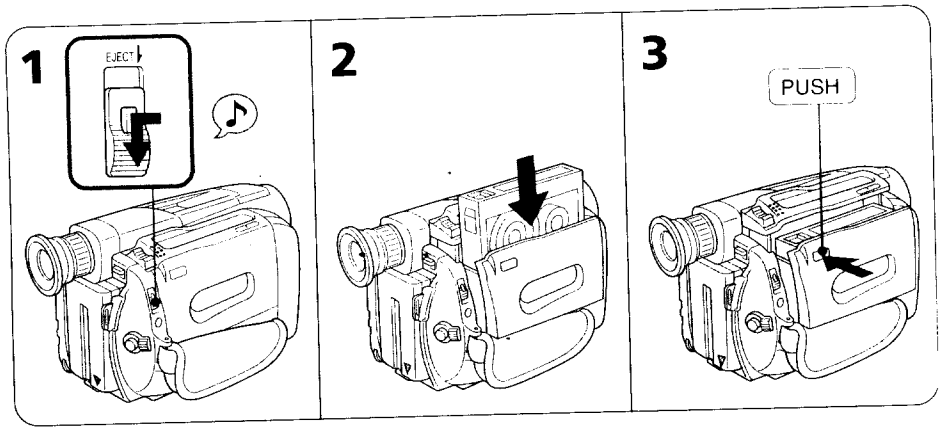
Inserting a cassette

Make sure that the power source is installed. When you want to record in the Hi8 system, use Hi8 video cassette Hi8 (CCD-TRV81 only).

(1) While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.

(2) Insert a cassette with the window facing out.

(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.

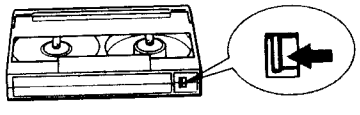


To eject the cassette

While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow.

To prevent accidental erasure

Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the and ⏏ indicators flash in the viewfinder or on the LCD screen, and you cannot record.
To re-record on this tape, slide the tab back out covering the red mark.



Basic operations

Camera recording

Make sure that the power source is installed and a cassette is inserted and that the START/STOP MODE switch inside the LCD panel is set to . Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.

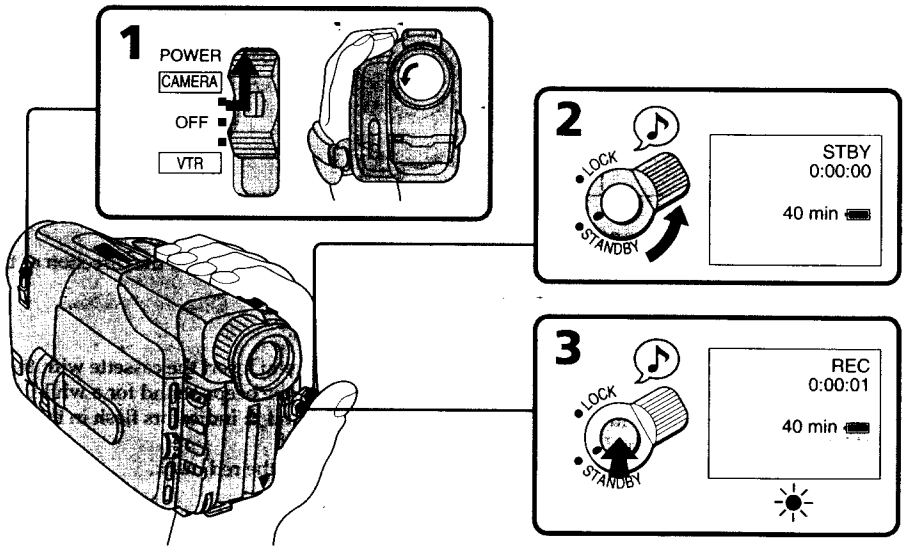
When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording (p. 62). The date is automatically recorded for 10 seconds after you start recording **(AUTO DATE feature)** (CCD-TRV41 only). This feature works only once a day.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

(3) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamp located on the front of the camcorder also lights up.

You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE in the menu system according to the length of your planned recording before you start.



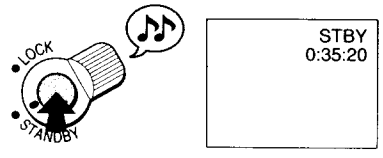
To stop recording momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder **(Standby mode)**.

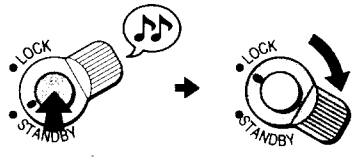
To finish recording [b]

Press START/STOP again. Turn STANDBY down and set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.

[a]

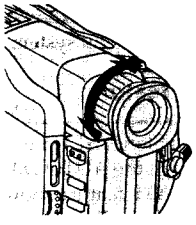


[b]



To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. The playback quality in LP mode, however, will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.
- If you select LP mode, then even if you are using a Hi8 tape, the camcorder records in the standard 8mm system. In this case, the Hi8 indicator flashes in the viewfinder or on the LCD screen.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

Notes on the tape counter

- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Camera recording

Note on the beep sound

As indicated with ♪ in the illustration, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.

Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Note on the AUTO DATE feature – CCD-TRV41 only

The clock is set to East Coast Standard Time at the factory. You can reset the clock in the menu system. You can change the AUTO DATE settings by selecting ON or OFF in the menu system. The AUTO DATE feature shows the date automatically once a day. However, the date may automatically appear more than once a day when:

- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.
- you set AUTO DATE to OFF once and set it to ON again in the menu system.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

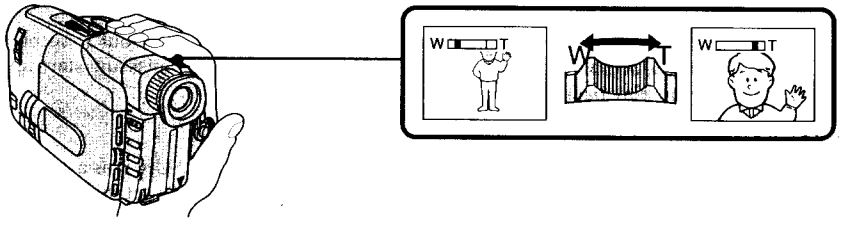
Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.

For more professional-looking recordings, use the zoom function sparingly.

"T" side: for telephoto (subject appears closer)

"W" side: for wide-angle (subject appears farther away)



Zooming speed (Variable speed zooming)

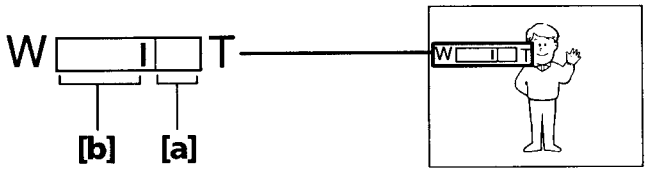
Move the power zoom lever a little for a slower zoom, move it further for a faster zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 2 5/8 feet (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom

- More than 15x zoom is performed digitally, and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** of the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.



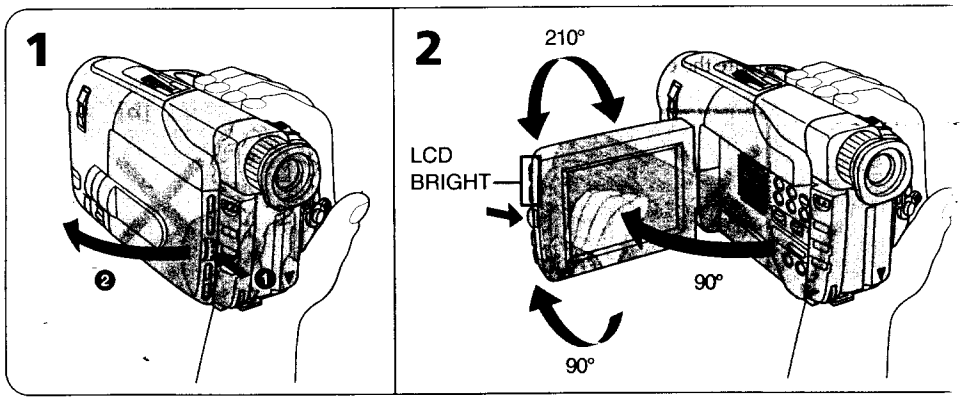
Shooting with the LCD screen

You can also record the picture while looking at the LCD screen.
When using the LCD screen, the viewfinder turns off automatically. You cannot monitor the sound from the speaker during recording.

(1) While pressing OPEN, open the LCD panel.

(2) Adjust the angle of the LCD panel.
The LCD panel moves about 90 degrees to this side and about 210 degrees to the other side.
To adjust the brightness of the LCD screen, press LCD BRIGHT.
+ side: to brighten the LCD screen
– side: to dim the LCD screen

The battery life is longer when the LCD panel is closed. Use the viewfinder instead of the LCD screen to save the battery power.



To let the subject monitor the shot

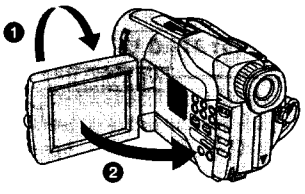
Turn the LCD panel over (p. 27).

Camera recording

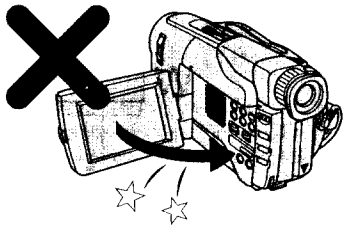
Notes on the LCD panel

- When closing the LCD panel, turn it vertically until it clicks **[a]**.
- When turning the LCD panel, turn it always vertically; otherwise, the camcorder body may be damaged or the LCD panel may not close properly **[b]**.
- Close the LCD panel completely when not in use.

[a]



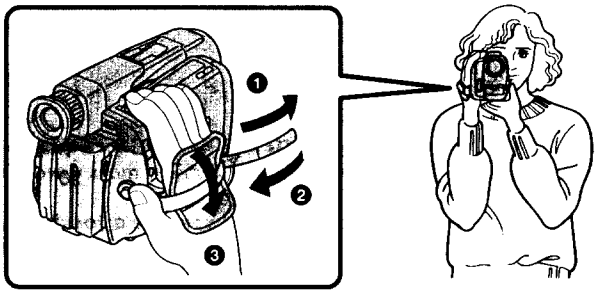
[b]



Hints for better shooting

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:

- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb.



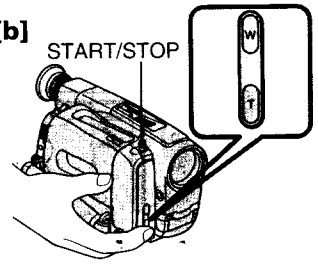
- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Be sure to not touch the built-in microphone.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.

Hints for better shooting

- You can also record in a low position to get an interesting angle. Lift the viewfinder up for recording from a low position **[a]**.
- While recording in a low position, you can use the START/STOP button on the top of the camcorder or the power zoom button located on the front **[b]**. Note that you cannot change the zooming speed using the front power zoom button.
- You can also record in a low position or even in a high position using the LCD panel **[c]**.
- When you use the LCD screen outdoors in direct sunlight, the LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

[a]

[b]



[c]

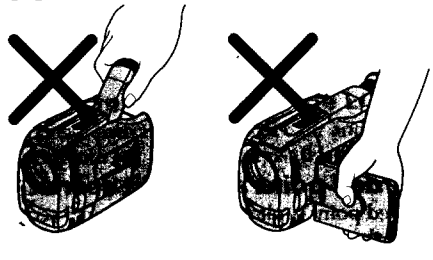
Place the camcorder on a flat surface or use a tripod

Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.
When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, the screw may damage the inner parts of the camcorder.

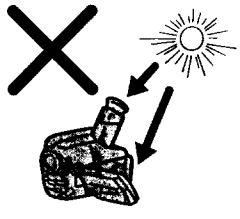
Cautions on the viewfinder and the LCD

- Do not pick up the camcorder by the viewfinder or by the LCD panel **[d]**.
- Do not place the camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window **[e]**.

[d]



[e]



Note on the LCD screen

The LCD screen is made with high-precision technology. However, black points or bright points of light (red, blue, or green) may appear on the LCD screen. These points are not recorded on the tape. This is not a malfunction. (Effective dots: more than 99.99%).

Checking the recorded picture

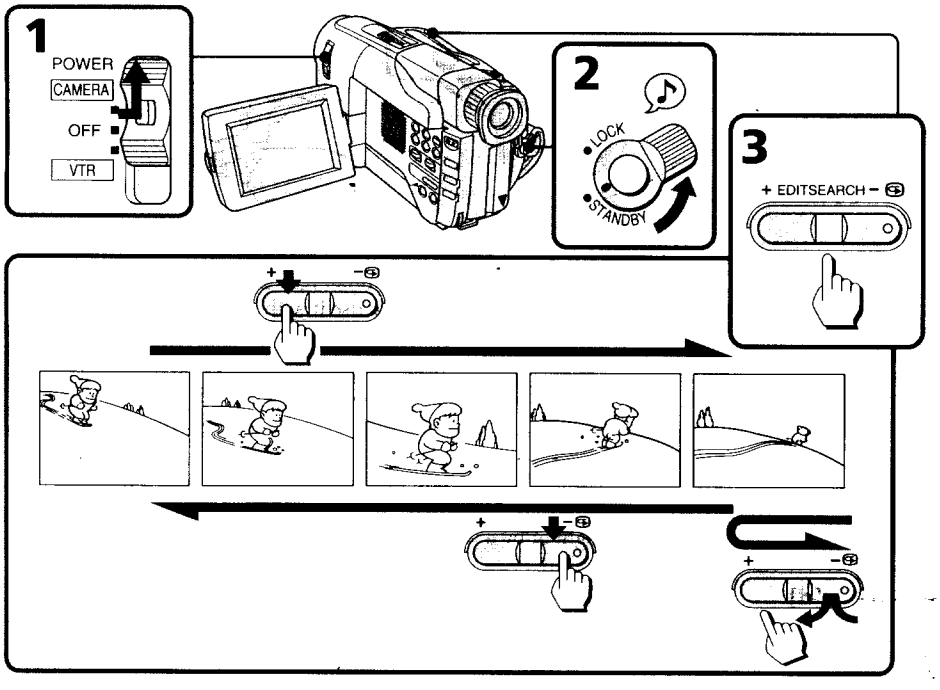
Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder and on the LCD screen.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

(3) Press the – (⊖) side of EDITSEARCH momentarily; the last few seconds of the recorded portion play back **(Rec Review)**.

Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Edit Search)**.



To stop playback

Release EDITSEARCH.

To go back to the last recorded point after edit search

Press END SEARCH. The last recorded point is played back for about 5 seconds (10 seconds in LP mode) and stops. Note that this function does not work once you eject the cassette after you recorded on the tape.

To begin re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Playing back a tape

You can monitor the playback picture on the LCD screen.

(1) While pressing the small green button on the POWER switch, set it to VTR. The video control buttons light up.

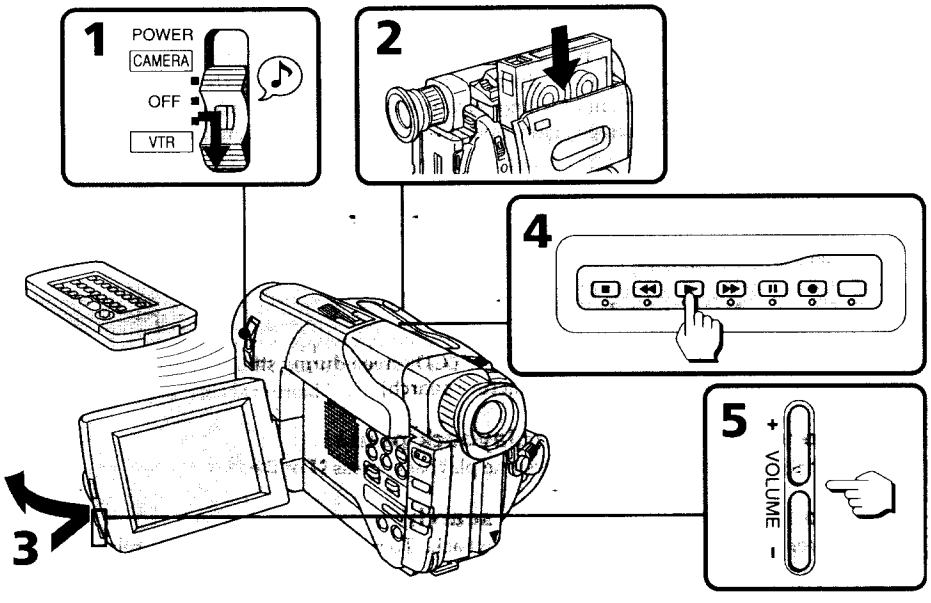
(2) Insert the recorded tape with the window facing out.

(3) While pressing OPEN, open the LCD panel. Adjust the angle of the LCD panel or the brightness of the LCD screen if necessary.

(4) Press ▷ to start playback.

(5) Adjust the volume using VOLUME.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR.

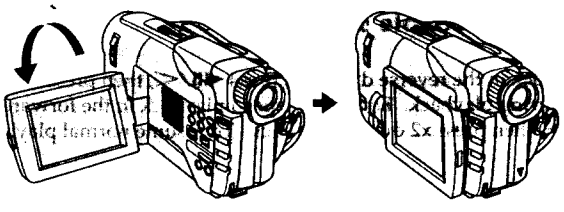


To stop playback, press □.
To rewind the tape, press ◀◀.
To fast-forward the tape rapidly, press ▶▶.

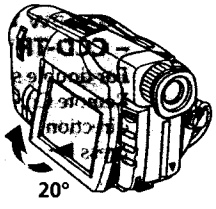
When monitoring on the LCD screen

You can turn the LCD panel over and move back to the camcorder with the LCD screen facing out **[a]**. You can adjust the angle of the LCD screen by turning the LCD screen up to 20 degrees **[b]**.

[a]



[b]



Playing back a tape

Using the remote commander

You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the size AA (R6) batteries.

Note on DISPLAY button

Press DISPLAY to display the screen indicators on the LCD screen. To erase the indicators, press DISPLAY again. If the POWER switch is set to CAMERA, you can erase the indicator by pressing DISPLAY.

Using headphones

Connect headphones (not supplied) to the ∩ jack. You can adjust the volume using VOLUME. When you use headphones, the speaker on the camcorder is silent.

To view the playback picture in the viewfinder

Close the LCD panel. The viewfinder turns on automatically. When using the viewfinder, you can monitor sound only by using headphones or an earphone. To view on the LCD screen again, open the LCD panel. The viewfinder turns off automatically.

Note on the lens cover

The lens cover does not open when the POWER switch is set to VTR. Do not open the lens cover manually. It may cause malfunction.

Various playback modes

You can enjoy noiseless pictures on the LCD screen during still, slow and picture search. **(Crystal-clear still/slow/picture search)**

To view a still picture (playback pause)

Press ❚❚ during playback. To resume playback, press ❚❚ or ▷.

To locate a scene (picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)

Press ❚▶ on the Remote Commander during playback. To resume normal playback, press ▶. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To view the picture at double speed – CCD-TRV81 only

For double speed playback in the reverse direction, press ◀❚❚/<, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >/❚❚▶, then press x2 during playback. To resume normal playback, press ▶.

To view the picture frame-by-frame – CCD-TRV81 only

Press ◄II/< or >/II► on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ►.

To change the playback direction – CCD-TRV81 only

Press ◄II/< on the Remote Commander for reverse direction or >/II► on the Remote Commander for forward direction during playback. To resume normal playback, press ►.

To select the playback sound

Change the "HiFi SOUND" mode setting in the menu system.

For standard 8 mm model users:

Tapes recorded in the Hi8 system can be played back on this camcorder. However, you cannot get as fine details as you would get using a Hi8 camcorder. Noise may appear during playback.

Notes on playback

- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the centre of the screen when you play back a tape in reverse if the RC time code or the Data Code is displayed on the screen (CCD-TRV81 only). This is normal.

Playing back a tape

Displaying the date or time when you recorded - Data Code function

– CCD-TRV81 only

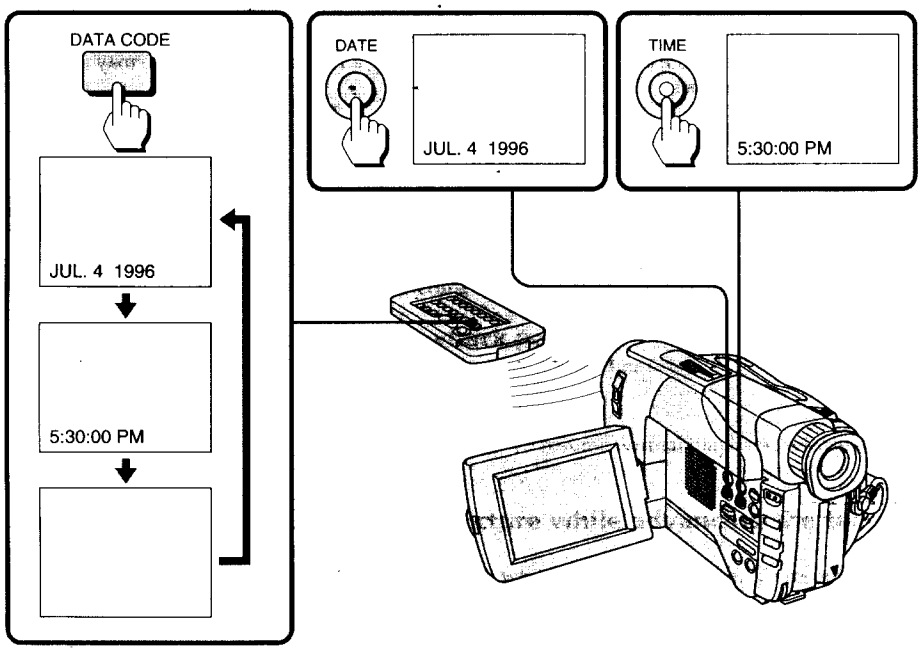
Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and on the LCD screen.

To display the date when you recorded

Press DATE on the camcorder, or press DATA CODE on the Remote Commander. To make the date disappear, press DATE again or DATA CODE twice.

To display the time when you recorded

Press TIME on the camcorder, or press DATA CODE on the Remote Commander twice. To make the time disappear, press it again.



When bars (--:--:--) appear

- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.
- The tape was recorded in LP mode.
- The tape is being played back in variable speed (Slow Playback, etc.)
- An index signal is marked, the RC time code is written, or PCM after recording is made on the tape.

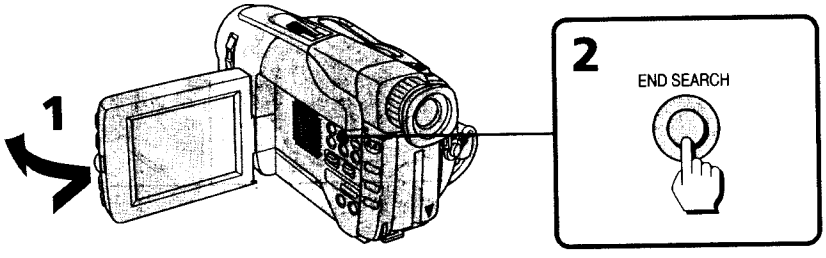
Searching for the end of the picture

You can go to the end of the recorded portion after you record and play back the tape to make the transition between the last scene you recorded and the next scene smooth. The tape starts rewinding or fast-forwarding and the last 5 seconds (10 seconds in LP mode) of the recorded portion play back. Then the tape stops at the end of the recorded picture **(End Search)**.
Note that the End Search function does not work once you eject the cassette after you have recorded on the tape.

(1) While pressing OPEN, open the LCD panel.

(2) Press END SEARCH.

This function works when the POWER switch is set to either CAMERA or VTR.



If you start recording after using END SEARCH
Occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Advanced operations

Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack, the house current and alkaline battery. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	House current	Supplied AC power adaptor
Outdoors	Battery pack	Battery pack NP-F530 (supplied), NP-F730
	Size AA (LR6) Sony Alkaline battery	Battery case (supplied)

Note on power sources
Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

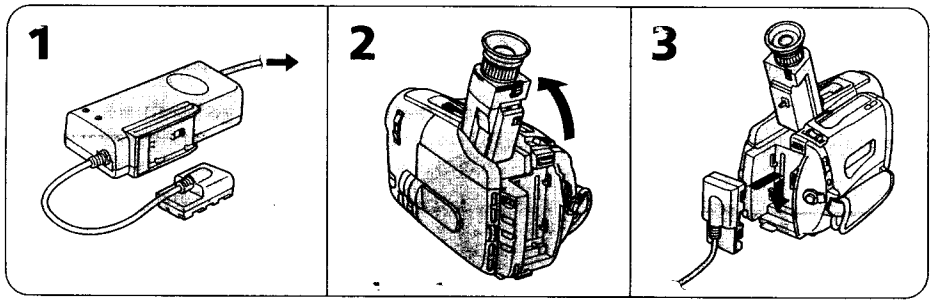
Using alternative power sources

Using the house current

(1) Connect the AC power cord to a wall outlet.

(2) Lift up the viewfinder.

(3) Slide the connecting plate down into the guides at the rear of the camcorder until it clicks.



To remove the adaptor

The adaptor is removed in the same way as the battery pack.

WARNING

The power cord must only be changed at a qualified service shop.

PRECAUTION

The set is not disconnected from the AC power source (mains) as long as it is connected to the house current, even if the set itself has been turned off.

Notes on the VTR/CAMERA lamp

- The VTR/CAMERA lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the VTR/CAMERA lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord.

Using the Battery Case

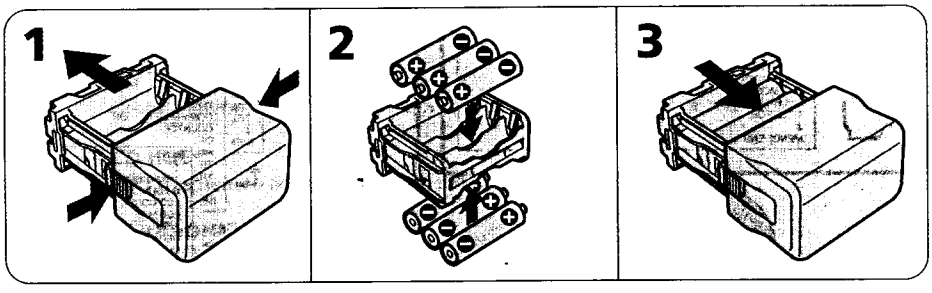
Use the battery case (supplied) and six size AA (LR6) Sony alkaline batteries (not supplied).

(1) Remove the battery holder from the battery case.

(2) Insert six new alkaline batteries into the battery holder, following the marking on the holder to be sure the batteries are installed in the correct direction.

(3) Insert the battery holder with the alkaline batteries.

(4) Insert the battery case with the alkaline batteries to the battery mounting surface of the camcorder in the same way as the battery pack.



Battery life

Using Sony alkaline batteries at 77°F (25°C)

Model	Continuous recording time	Typical recording time	Playing time on LCD
CCD-TRV41	135 (90) min.	80 (55) min.	90 min.
CCD-TRV81	130 (75) min.	80 (45) min.	70 min.

Numbers in parentheses indicate the time when you record with the LCD screen.

Notes

- You may not use the battery case in cold environment.
- The above battery lives are estimates. The battery life may be shorter depending on the storage condition of the battery before being purchased and temperature.

To remove the battery case

The battery case is removed in the same way as the battery pack.

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

Changing the mode settings

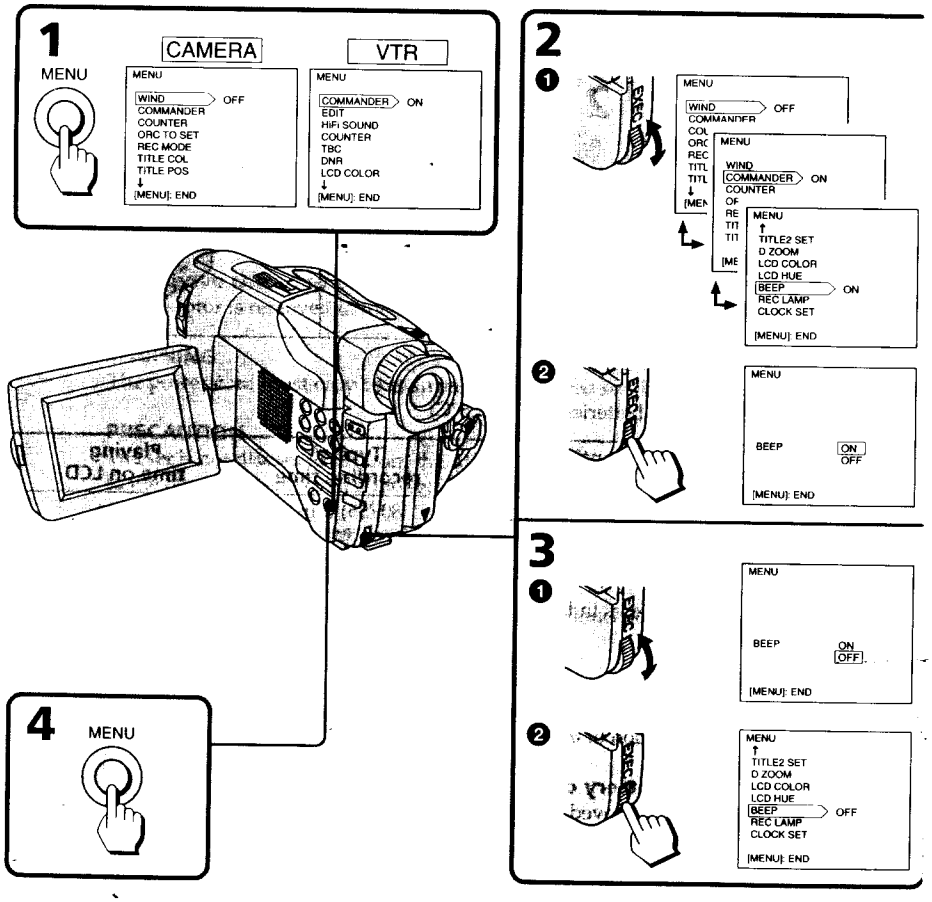
You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.

(1) Press MENU to display the menu.

(2) Turn the control dial to select the desired item, then press the dial.

(3) Turn the control dial to select the desired mode, and press the dial. If you want to change the other modes, repeat steps 2 and 3.

(4) Press MENU to erase the menu display.



While recording in mirror mode

The menu does not appear on the LCD screen.

Selecting the mode setting of each item

Items for both CAMERA and VTR modes

COUNTER* <NORMAL/TIME CODE> (CCD-TRV81 only)
- Normally select NORMAL.
- Select TIME CODE to display the RC time code in order to edit more precisely.

REC MODE* <SP/LP>
- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

LCD COLOR*
Select this item to adjust the color on the LCD screen (greener or redder).

LCD HUE*
Select this item to adjust the hue on the LCD screen.

BEEP* <ON/OFF>
- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

Items for CAMERA mode only

WIND <ON/OFF>
- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

ORC TO SET*
Select this item to automatically adjust the recording condition to get the best possibl recording.
If you have already performed this function, "ON" is displayed.

D ZOOM* <ON/OFF>
- Select ON to activate digital zooming.
- Select OFF to not use the digital zoom. The camcorder goes back to 15x zoom.

AUTO DATE* <ON/OFF> (CCD-TRV41 only)
- Select ON to record the date for 10 seconds after recording has started.
- Select OFF to not record the date.

REC LAMP* <ON/OFF>
- Select OFF when you do not want the camera recording/battery lamp at the front the unit to light up.
- Normally select ON.

TITLE COL* <WHITE/YELLOW/VIOLET/RED/CYAN/GREEN/BLUE>
Select the color of the title.

Changing the mode settings

TITLE POS* <CENTER/BOTTOM>
- Select CENTER to center the title in the picture.
- Select BOTTOM to position the title at the bottom of the picture.

TITLE LANG* <ENGLISH/ FRANÇAIS/ ESPAÑOL/ PORTUGUÊS>
Select the language of the preset titles.

TITLE1 SET*/TITLE2 SET*
Store your own titles.

CLOCK SET*
Reset the date or time.

Items for VTR mode only

EDIT <ON/OFF>
- Select ON to minimize picture deterioration when editing.
- Normally select OFF.

HiFi SOUND <STEREO/1/2>
- Normally select STEREO.
- Select 1 or 2 to play back a dual sound track tape.

TBC* <ON/OFF> (CCD-TRV81 only)
- Normally select ON, to correct for jitter.
- Select OFF to not correct for jitter. The picture may not be steady when played back.

DNR* <ON/OFF> (CCD-TRV81 only)
- Normally select ON to reduce picture noise.
- Select OFF if the picture has a lot of movement, causing a conspicuous afterimage.

* These settings are retained even when the battery is removed, as long as the lithium battery is in place.

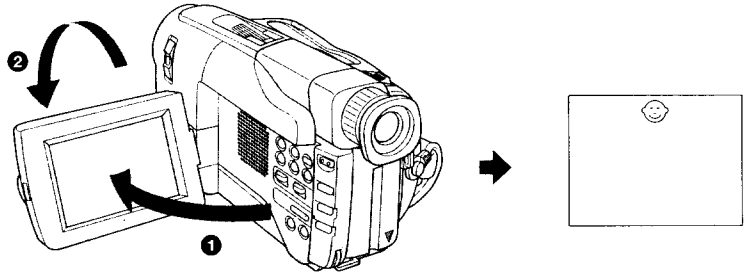
Note on TBC setting
Set TBC to OFF when playing back:
- A tape you have dubbed over.
- A tape on which you recorded the signal of a TV game or similar machine.

The following settings work only during playback
EDIT, HiFi SOUND, TBC, and DNR.

Letting the subject monitor the shot

You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot while shooting with the viewfinder.

Turn the LCD panel vertically first until it clicks, then turn it over. The ☺ indicator appears on the LCD screen **(Mirror mode)** and the date and remaining tape indicators disappear.



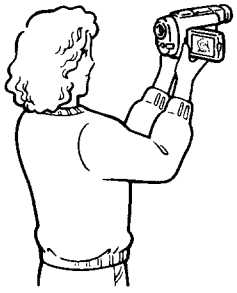
To cancel mirror mode

Turn the LCD panel back toward the viewfinder.

Notes on mirror mode

- When you turn the LCD panel about 135 degrees to 210 degrees, the camcorder enters mirror mode.
- Using the mirror mode, you can record yourself while watching yourself on the LCD **[a]**.
- The picture on the LCD looks as a mirror-image while recording in mirror mode **[b]**. The STBY indicator appears as ●II and REC as ●. Other indicators are reversed. The other indicators may not appear in mirror mode.
- While recording in mirror mode, you cannot operate the following buttons: TITLE, DATE, TIME, MENU, COUNTER RESET, and ZERO MEM on the Remote Commander (CCD-TRV81 only).
- The date appears in reverse when the AUTO DATE feature is turned on (CCD-TRV41 only). When recorded it will be normal.

[a]



[b]

Fade-in and fade-out

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound increases. When fading out, the picture gradually fades to black or mosaic while the sound decreases.

When fading in [a]

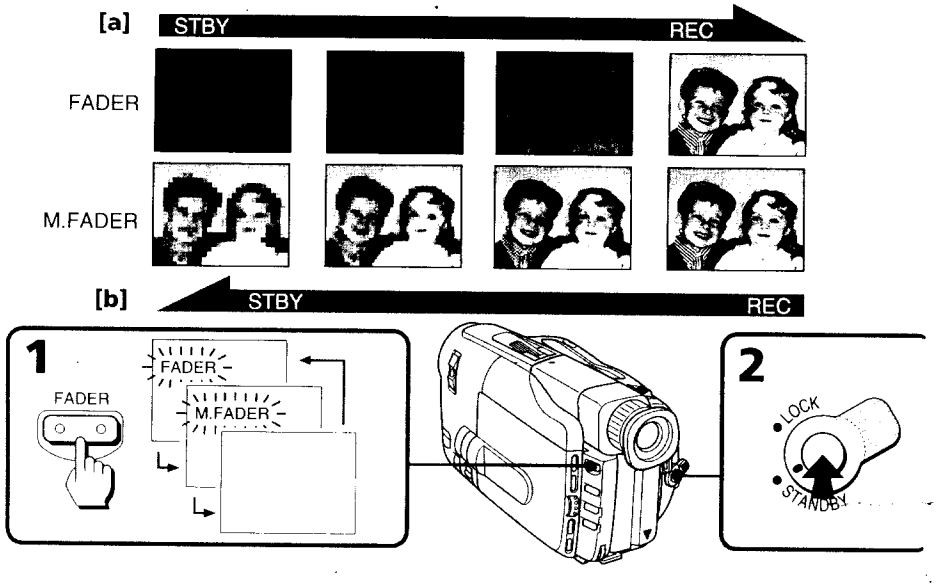
(1) While the camcorder is in Standby mode, press FADER. The fade indicator starts flashing.

(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

(1) During recording, press FADER. The fade indicator starts flashing.

(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.



To cancel the fade-in/fade-out function

Before pressing START/STOP, press FADER until the fade indicator disappears.

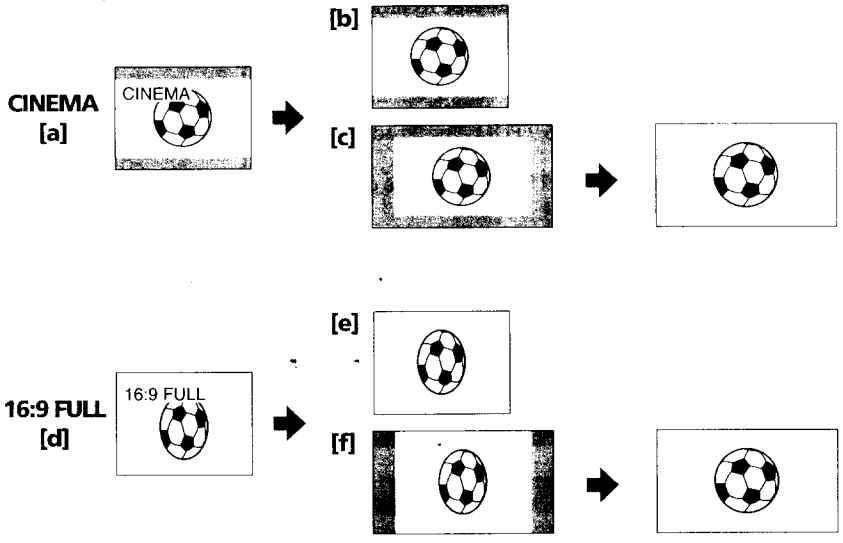
When the date or time indicator is displayed

The date or time indicator does not fade in or fade out.

Using the wide mode function

Selecting the desired mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).



CINEMA

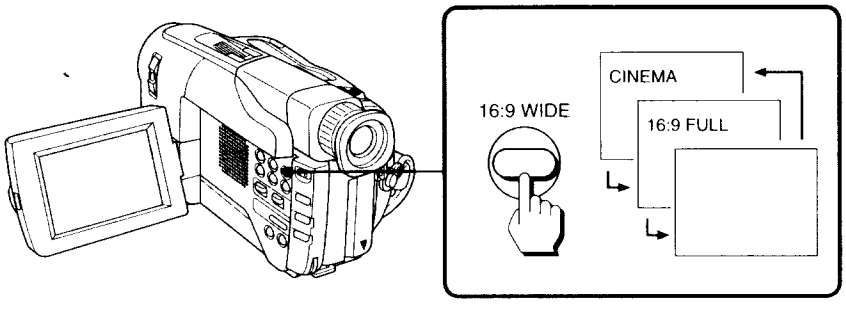
Black bands appear at the top and the bottom of the screen, and the viewfinder or LCD screen **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**.

16:9 FULL

The picture in the viewfinder or LCD screen **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

Using the wide mode function

While the camcorder is in Standby mode, press 16:9 WIDE repeatedly so that the desired mode indicator appears in the viewfinder or on the LCD screen.



Using the wide mode function

To cancel wide mode

Press 16:9 WIDE repeatedly until the wide mode indicator disappears.

To watch the tape recorded in wide mode

To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

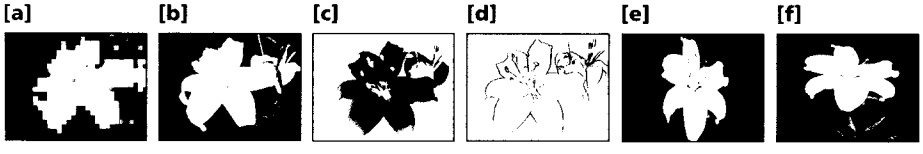
Notes on wide mode

- If wide mode is set to 16:9 FULL, the Steady Shot function does not work and the indicator flashes.
- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.
- The wide mode is canceled automatically 5 minutes after you remove the power source.

Enjoying picture effect

Selecting picture effect

You can make pictures like those of television with the Picture Effect function.



MOSAIC [a]
The picture is mosaic.

SOLARIZE [b]
The light intensity is more clear, and the picture looks like an illustration.

B&W
The picture is monochrome (black and white).

SEPIA
The picture is sepia.

NEG. ART [c]
The color of the picture is reversed.

PASTEL [d]
The contrast of the picture is emphasized, and the picture looks like an animated cartoon.

SLIM [e]
The picture expands vertically.

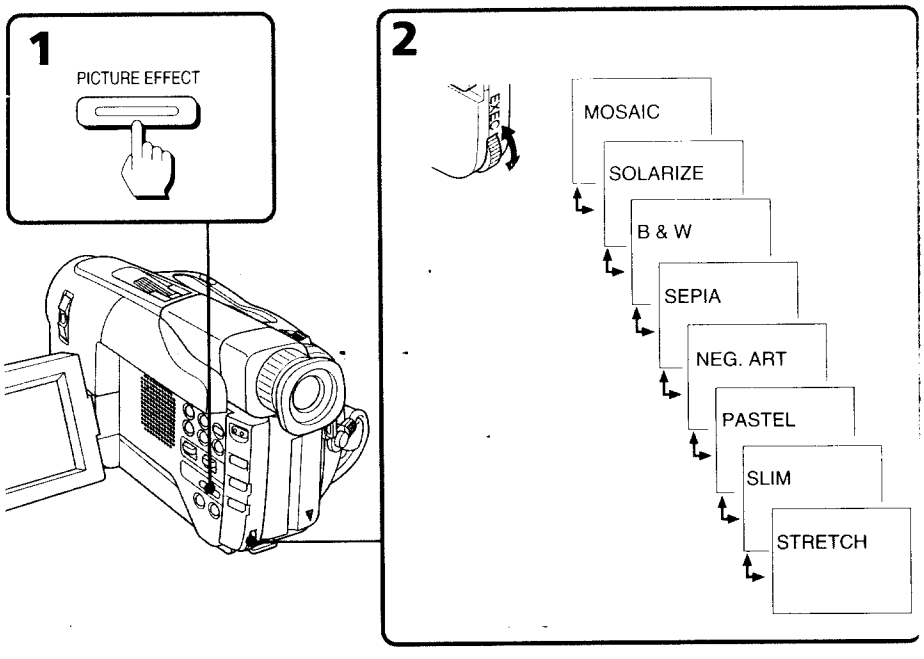
STRETCH [f]
The picture expands horizontally.

Enjoying picture effect

Using picture effect function

(1) Press PICTURE EFFECT.

(2) Turn the control dial to select the desired picture effect mode.



To turn off picture effect

Press PICTURE EFFECT. The indicator in the viewfinder or on the LCD screen goes out.

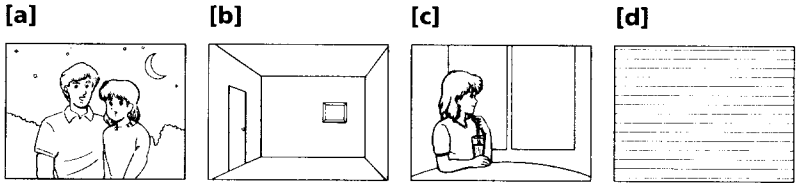
Note on the picture effect

When you turn the power off, the camcorder returns automatically to normal mode.

Focusing manually

When to use manual focus

In the following cases you should obtain better results by adjusting the focus manually.



- Insufficient light **[a]**
- Subjects with little contrast - walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting the light
- Shooting a stationary subject when using a tripod

Focusing manually

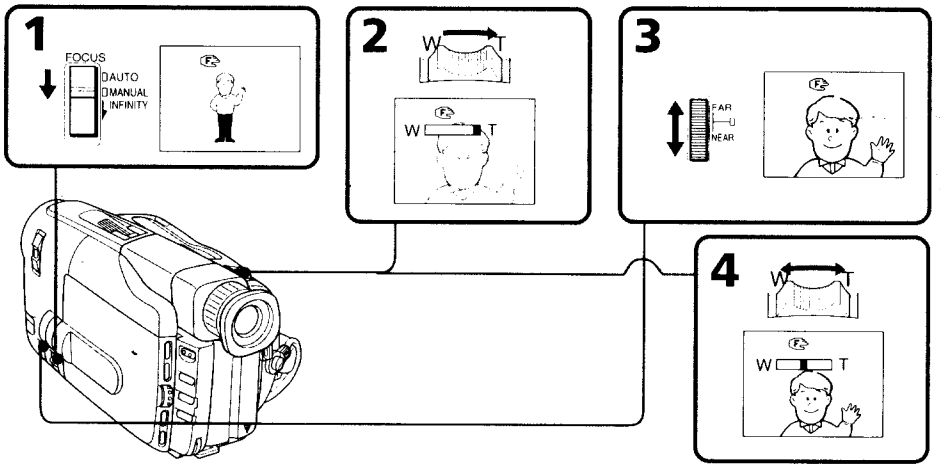
When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Set FOCUS to MANUAL. The ⓕ indicator appears in the viewfinder.

(2) Move the power zoom lever to the "T" side until the lever reaches the end.

(3) Turn the FAR/NEAR dial to achieve a sharp focus.

(4) Set the desired shot length using the power zoom lever.



To return to autofocus mode

Set FOCUS to AUTO. The ⓕ indicator in the viewfinder disappears.

Shooting in relatively dark places
Shoot at wide-angle after focusing in the telephoto position.

To record a very distant subject

Push FOCUS down to INFINITY. The lens focuses on the most distant subject while FOCUS is held down. When it is released, manual focus mode is resumed.
Use this function when shooting through a window or a screen, to focus on a most distant subject.

Notes on manual focusing
The following indicators may appear:

- when recording a very distant subject.
- when the subject is too close to focus on.

Using the PROGRAM AE function

Selecting the best mode

You can select one of six PROGRAM AE (Auto Exposure) modes to suit your shooting situation, referring to the following.

Spotlight mode
For subjects in spotlight, such as at the theater or a formal event.

Soft Portrait mode
For zooming in on a still subject in telephoto mode, or for a subject behind an obstacle such as a screen. Creates a soft background for subjects such as people or flowers, and faithfully reproduces skin color.

Sports Lesson mode
For recording fast-moving subjects such as in tennis or golf games.

Beach & Ski mode
For people or faces in strong light or reflected light, such as at a beach in midsummer o on a ski slope.

Sunset & Moon mode
For recording subjects in dark environments such as sunsets, fireworks, neon signs, or general night views.

Landscape mode
For distant subjects (more than 10 meters away) such as mountains or when recording subject behind an obstacle such as a window or screen.

Using the PROGRAM AE function

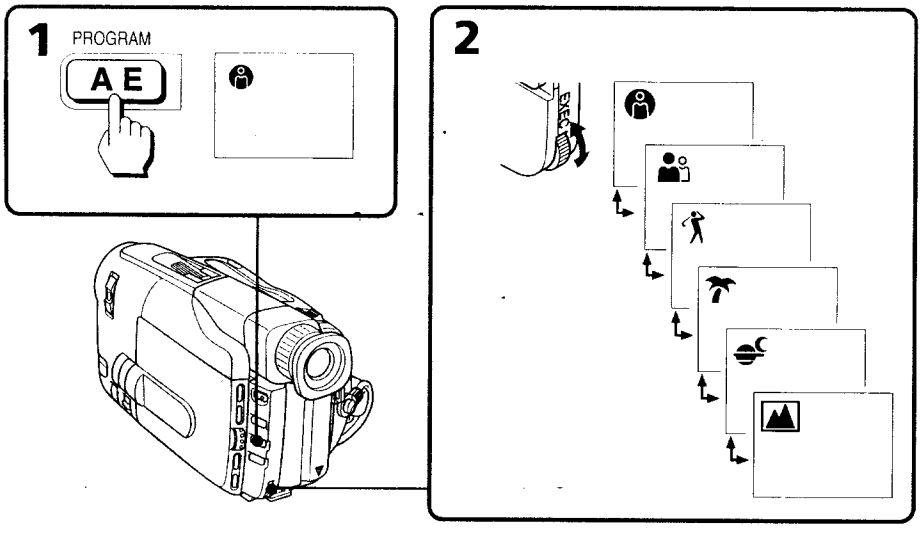
Notes on focus setting

- In the Spotlight, Sports lesson and Beach & Ski modes, you cannot take close-ups because the camcorder is set to focus only on subjects in the middle to far distance.
- In the Sunset & Moon and Landscape modes, the camcorder is set to focus only on distant subjects.

Using the PROGRAM AE function

(1) Press PROGRAM AE.

(2) Turn the control dial to select the desired PROGRAM AE mode.



To turn off program AE

Press PROGRAM AE.

Note on shutter speed

The shutter speed in the following PROGRAM AE modes is as follows:
Soft Portrait mode - from 1/60 to 1/500
Sports Lesson mode - from 1/250 to 1/4000
Beach & Ski mode - from 1/60 to 1/250

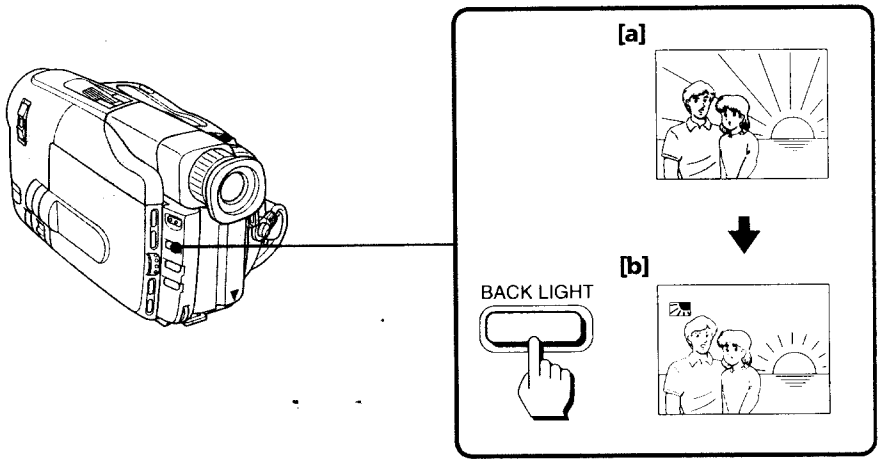
Note on PROGRAM AE

You can adjust the exposure while recording using PROGRAM AE mode.

Shooting with backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The indicator appears in the viewfinder.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting

Be sure to release this adjustment condition by pressing BACK LIGHT again. The indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under the following conditions:

- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

To make a fine adjustment

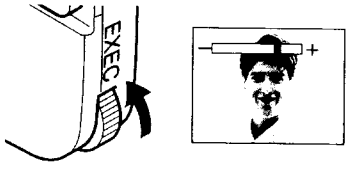
You can adjust the exposure manually. However, when you adjust the exposure manually, BACK LIGHT does not operate.

Adjusting the exposure

When to adjust the exposure

When you shoot in a snowfield or on a beach in the mid-summer and the subject may become dark because of the extreme brightness, you can change the brightness of the picture. You can also use this function when the subject is too bright - subjects on stages, night views, etc.

[a]



[b]

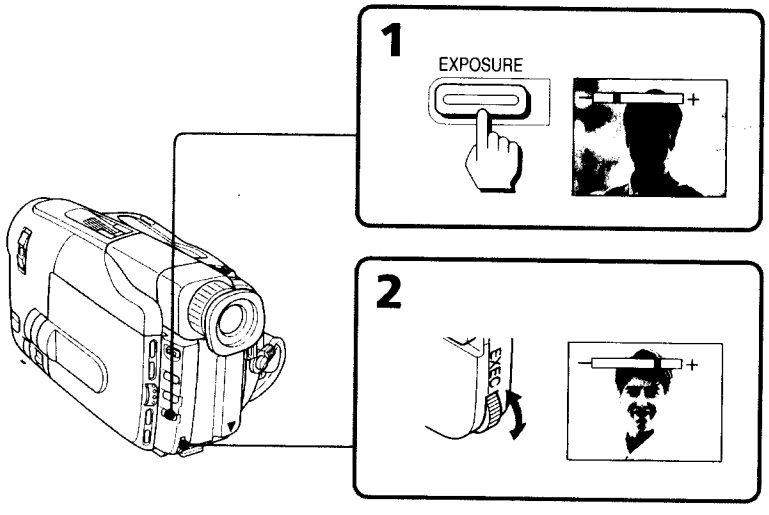
[a] Turn the control dial up when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the control dial down when:
- Bright subject and dark background
- To record the darkness faithfully

Adjusting the exposure

(1) Press EXPOSURE.

(2) Turn the control dial to adjust the brightness.



To return to automatic exposure mode

Press EXPOSURE again.

Shooting with the sun behind you

If the light source is behind your subject, or in the following situations, the subject wil be recorded too dark.

- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark

We recommend you to use a video light (not supplied). To get the best color, you mus maintain a sufficient light level.

When you adjust the exposure manually

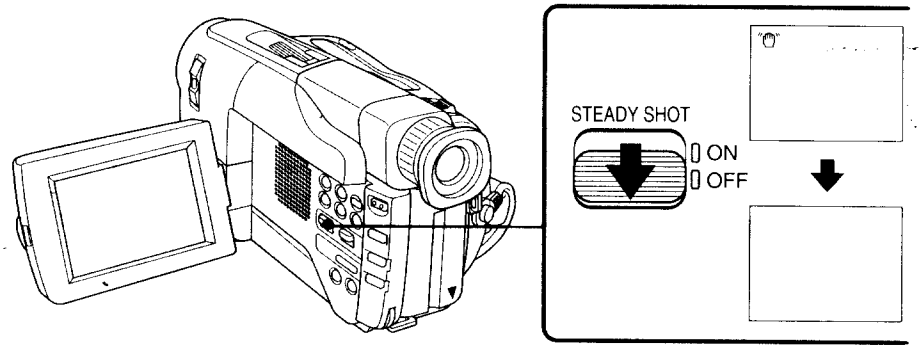
- BACK LIGHT does not work.
- If you press PROGRAM AE, the camcorder automatically returns to automatic exposure mode.

Releasing the STEADY SHOT function

When you shoot, the "hand" indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

You can release the Steady Shot function when you do not need to use the Steady Sho function. Do not use the Steady Shot function when shooting a stationary object with tripod.

Set STEADY SHOT to OFF.



To activate the Steady Shot function again

Set STEADY SHOT to ON.

Notes on the Steady Shot function

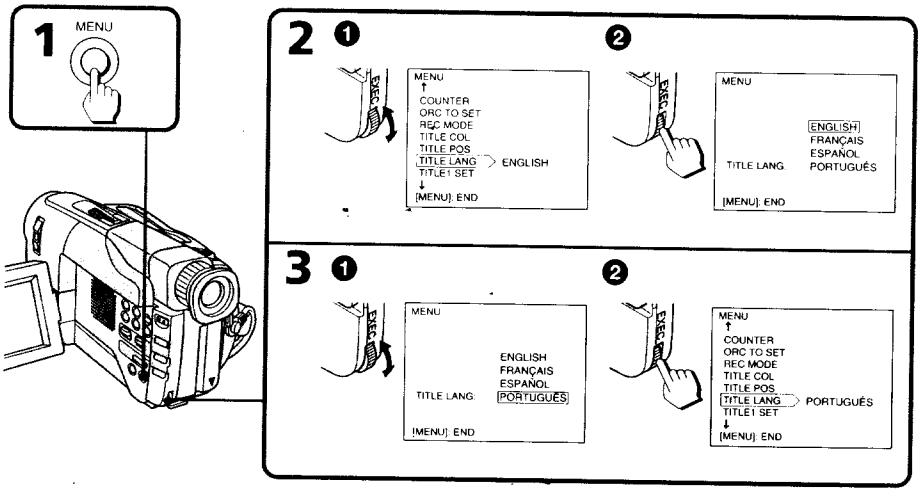
- The Steady Shot function will not correct excessive camera-shake.
- When you switch the STEADY SHOT function on or off, the exposure may fluctuat

Superimposing a title

You can select one of eight preset titles. You can also select the language, position, and color of titles in the menu system.

Selecting the language

(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE LANG, then press the dial.
(3) Turn the control dial to select the desired language, then press the dial.
(4) Press MENU to erase the menu display.



Using titles

To add the title from the beginning

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it is flashing. When the desired title appears, wait for it to stop flashing.

(2) Press START/STOP to start recording.

(3) When you want to stop recording the title, press TITLE.

To add the title while you are recording

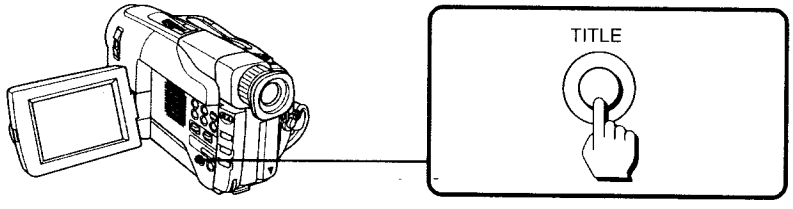
(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it is flashing.

(2) When the desired title appears, wait for it to stop flashing, and press TITLE again to erase the title from the display.

(3) Press START/STOP to start recording.

(4) When you reach the point where you want to add the title, press TITLE.

(5) When you want to stop recording the title, press TITLE again.



Titles cycle as follows:
Original title 1 → Original title 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATULATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
After "THE END" appears, the title display disappears, and then Original title 1 returns.

Notes on superimposing a title
- If you have not made any original titles, they are not displayed.
- You cannot select a title while you are recording.
- FADER does not work while the title is displayed.
- You cannot simultaneously record the title and the date or time.
- You cannot record the title during fade-in/fade-out.
- If you display the menu while superimposing a title, the title is not recorded while the menu is being displayed.

Superimposing a title

To select the color of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the dial to select TITLE COL, then press the dial.

(3) Turn the control dial to select the desired color, then press the dial.
You can chose from the following 7 colors:
WHITE ⟷ YELLOW ⟷ VIOLET ⟷ RED ⟷ CYAN ⟷ GREEN ⟷ BLUE

(4) Press MENU to erase the menu display.

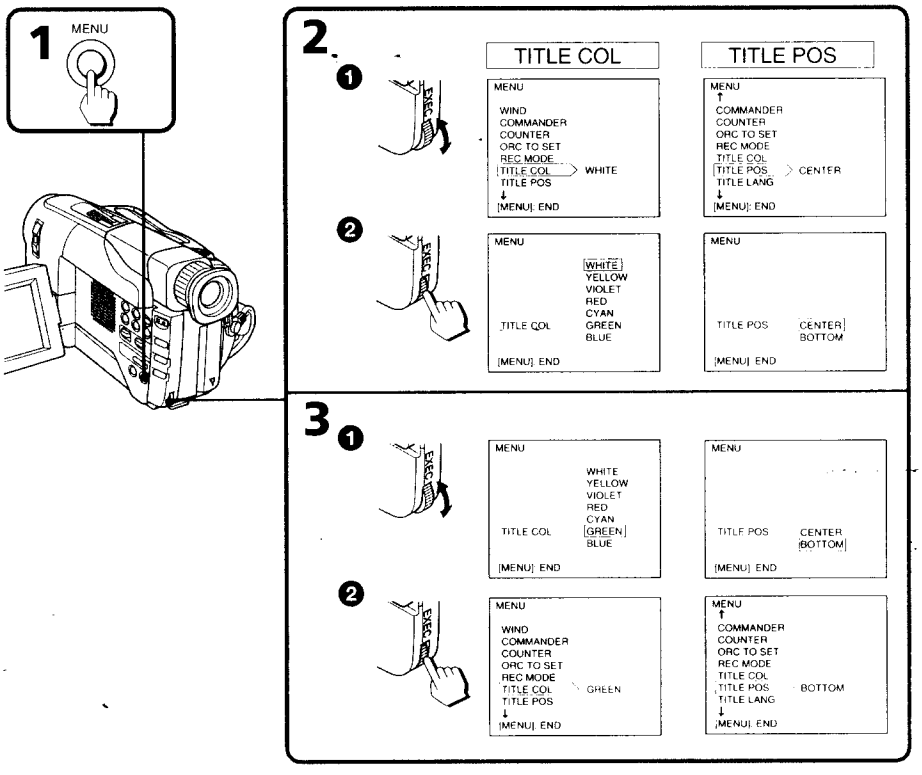
To select the position of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the dial to select TITLE POS, then press the dial.

(3) Turn the control dial to select the desired position (CENTER or BOTTOM), then press the dial.

(4) Press MENU to erase the menu display.



Making your own titles

You can make up to two titles and store them in the camcorder. We recommend to ejec the cassette before you begin.
Your title can have up to 22 characters.

(1) While the camcorder is in Standby mode, press MENU to display the menu.

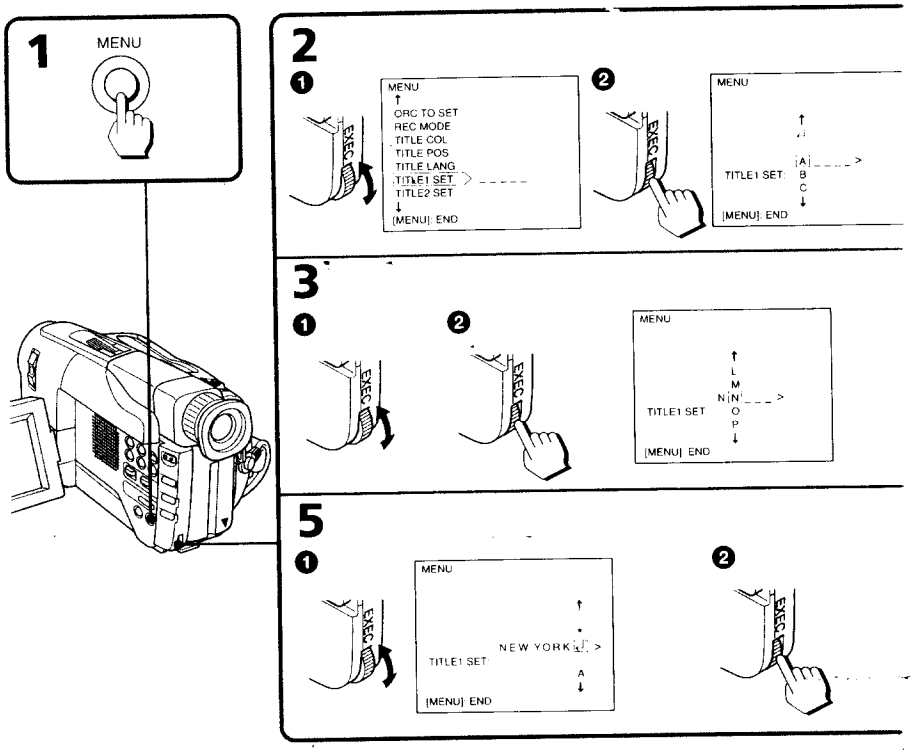
(2) Turn the control dial to select TITLE1 SET or TITLE2 SET, then press the dial.

(3) Turn the control dial to select the desired character, then press the dial.

(4) Repeat step 3 until you finish the title.

(5) When you are finished, turn the control dial to select ←, then press the dial.

(6) Press MENU to erase the menu display.



To edit a title you have stored

In step 2, select TITLE1 SET or TITLE2 SET, depending on which title you want to edi then change the title.

If you enter 22 characters in step 4

The title is stored immediately (and you can skip step 5).

If you take 5 minutes or longer to enter characters while a cassette is in the camcorder

The power goes off automatically. Characters you have entered remain. Turn STANDBY down once and then up again, then proceed from step 1.

To delete a title

At the leftmost character position, select and press TITLE. Do not erase the title selecting empty spaces. If you do so, a title full of empty spaces is stored.

Re-recording a picture in the middle of a recorded tape

– CCD-TRV81 only

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. When the RC time code appears, set COUNTER to NORMAL in the menu system to display the tape counter.

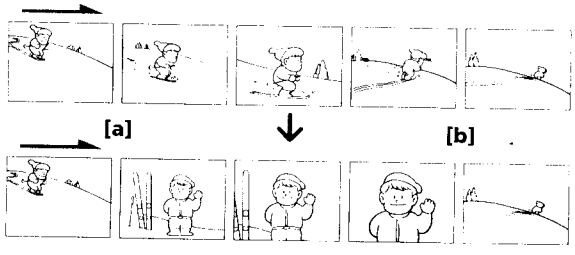
(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or – (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion **[b]**. The camcorder enters Standby mode again.

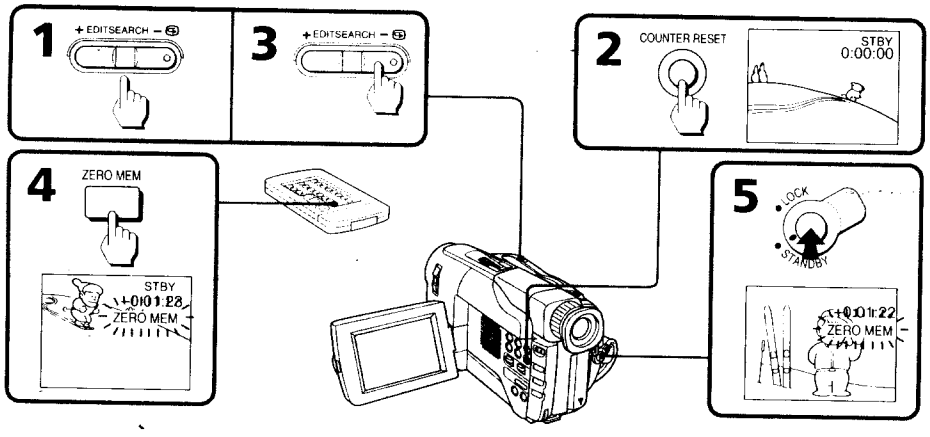
(2) Press COUNTER RESET. The counter resets to zero.

(3) Keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion **[a]**.

(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.

(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.





To change the end point

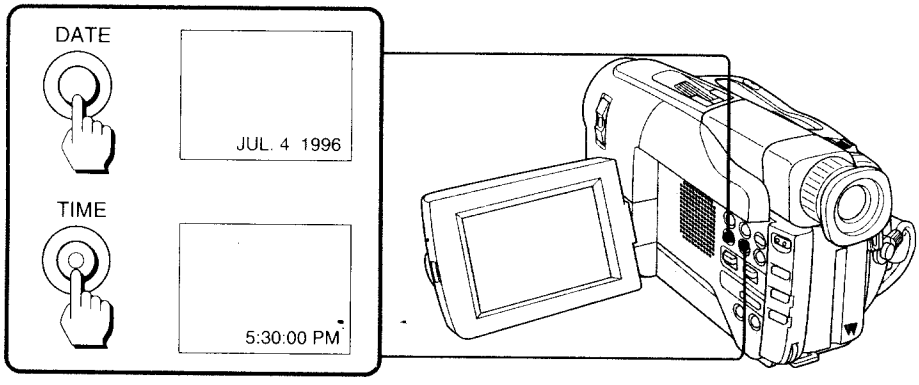
Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.

Note on re-recording

The picture and the sound may be distorted at the end of the inserted portion when it is played back.

Recording with the date or time

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder or on the LCD screen with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder or on the LCD screen is recorded.
The clock is set to East Coast Standard Time at the factory. You can reset the clock in the menu system.



To stop recording with the date or time

Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Note on the date or time indicator

If you press DATE or TIME while you are recording in CINEMA mode, the indicators in the viewfinder or on the LCD screen move upwards.

Re-recording a picture in the middle of a recorded tape

– CCD-TRV81 only

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. When the RC time code appears, set COUNTER to NORMAL in the menu system to display the tape counter.

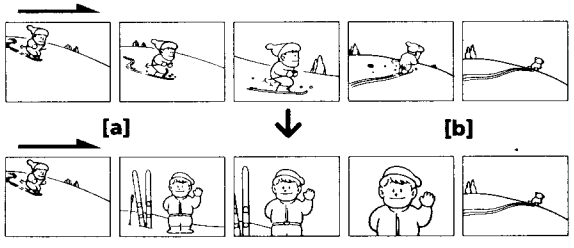
(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or – (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion **[b]**. The camcorder enters Standby mode again.

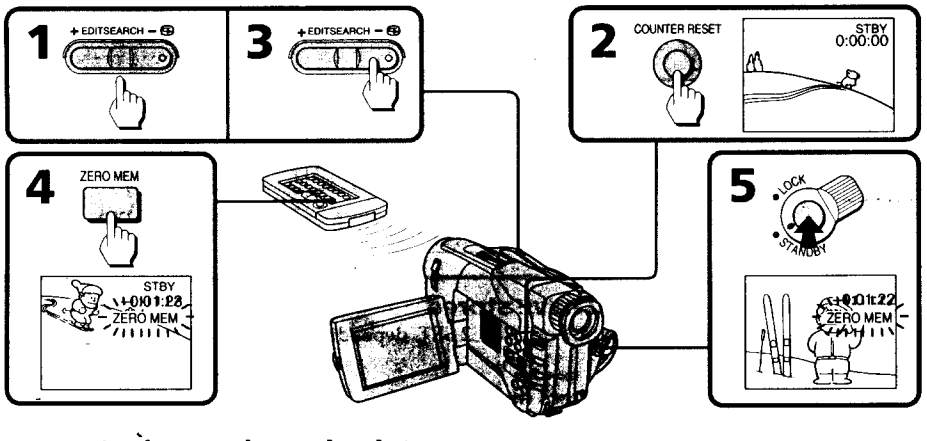
(2) Press COUNTER RESET. The counter resets to zero.

(3) Keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion **[a]**.

(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.

(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.





To change the end point

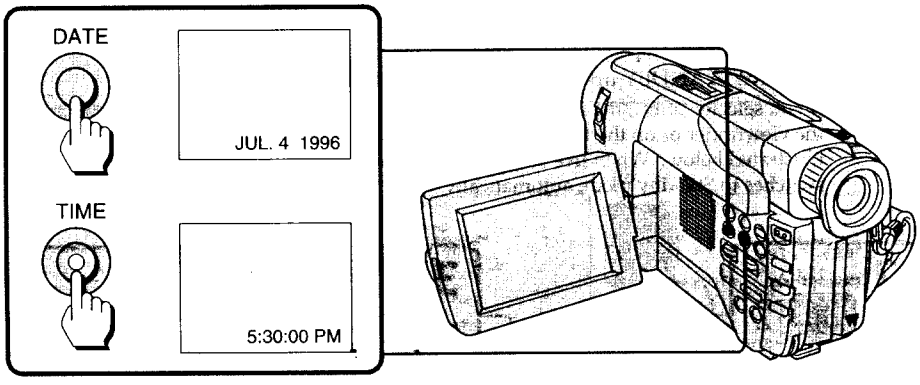
Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.

Note on re-recording

The picture and the sound may be distorted at the end of the inserted portion when it is played back.

Recording with the date or time

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder or on the LCD screen with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder or on the LCD screen is recorded.
The clock is set to East Coast Standard Time at the factory. You can reset the clock in the menu system.



To stop recording with the date or time

Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Note on the date or time indicator

If you press DATE or TIME while you are recording in CINEMA mode, the indicators in the viewfinder or on the LCD screen move upwards.

Selecting the START/STOP mode

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) While pressing OPEN, open the LCD panel.

(2) Set START/STOP MODE to the desired mode.

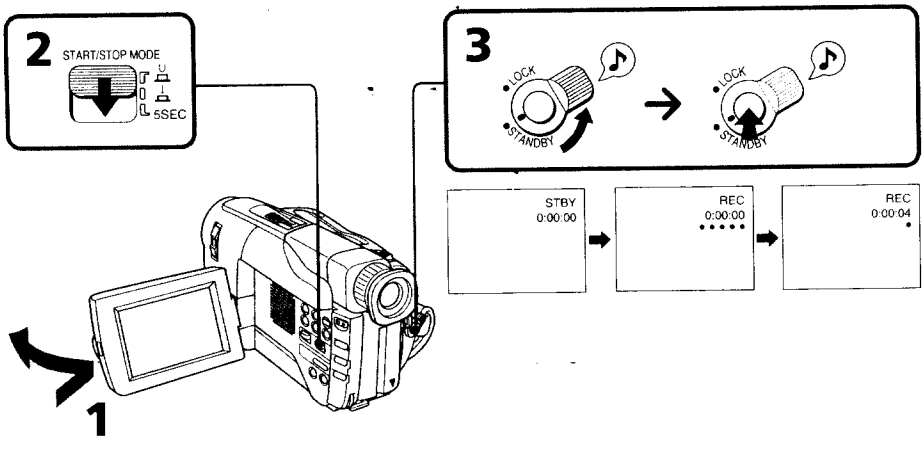
: Recording starts when you press START/STOP, and stops when you press it again (normal mode).

: The camcorder records only while you press down START/STOP.

5SEC : When you press START/STOP, the camcorder records for 5 seconds and then stops automatically.

(3) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5SEC, the remaining tape indicator disappears and five dots appear in the viewfinder or on the LCD screen. The dots disappear at a rate of one per second as illustrated below. When five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.



To extend the recording time in 5SEC mode

Press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you press START/STOP.

Notes on START/STOP mode

- If you have turned off the indicators on the LCD screen, the dots do not appear.
- You cannot use FADER in 5SEC or mode.

Optimizing the recording condition

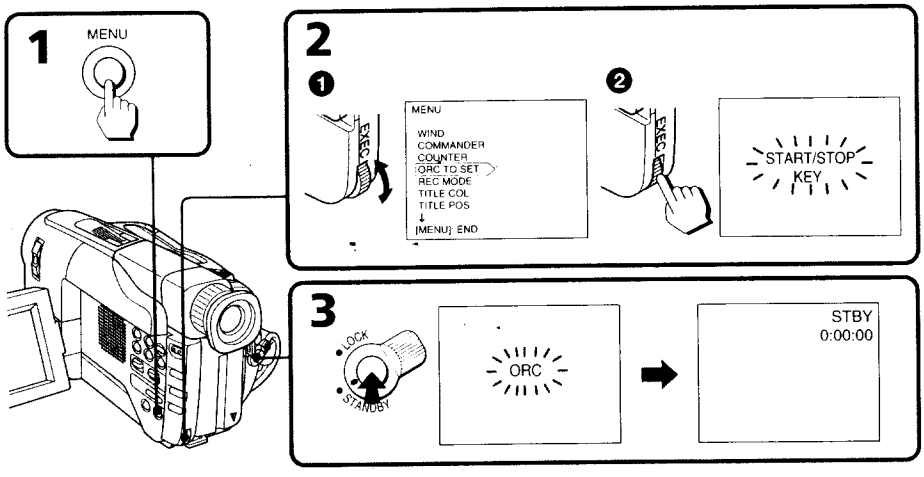
Use this feature to check the tape condition before recording, so that you can get the best possible picture (ORC).

(1) While the camcorder is in Standby mode, press MENU to display the menu.

(2) Turn the control dial to select ORC TO SET, then press the dial.
"START/STOP KEY" flashes.

(3) Press START/STOP.

The camcorder takes about 5 seconds to check the tape condition and then returns to Standby mode.



Each time you insert the cassette

Perform the above procedures.

To see if the tape condition has been checked

Perform steps 1 and 2 above. If "ORC TO SET ORC ON" is displayed, the tape condition has been checked.

Notes on the ORC function

- A 0.1 second unrecorded space is made on the tape. However, if you start recording immediately, the unrecorded portion disappears.
- You cannot use this function on a tape with the red mark on the cassette exposed.

Watching on a TV screen

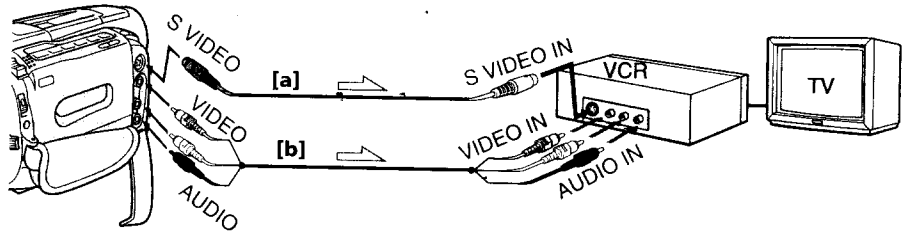
You can use the camcorder as a VCR by connecting it to your TV for playback. There are some ways to connect the camcorder to your TV. When monitoring the playback picture by connecting the camcorder to your TV, we recommend you to use house current for the power source.

While playing back on a TV screen, close the LCD panel. Otherwise, picture distortion may occur.

Connecting directly to a VCR/TV with Video/Audio input jacks

If your TV is already connected to a VCR

Open the jack cover and connect the camcorder to the LINE IN inputs on the VCR by using the supplied A/V connecting cable. Set the input selector on the VCR to LINE. Set the TV/VCR selector on the TV to VCR.

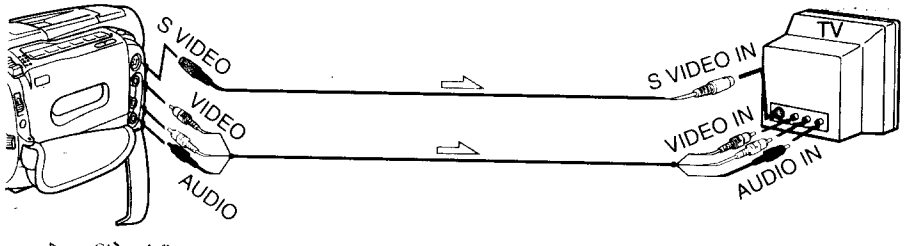


: Signal flow

If you are going to connect the camcorder using the S video cable (not supplied) **[a]**, you do not need to connect the yellow (video) plug of the A/V connecting cable **[b]**.
The CCD-TRV41 does not have an S VIDEO jack.

If you connect directly to a TV

Connect the camcorder to the inputs on the TV by using the supplied A/V connecting cable. Set the TV/VCR selector on the TV to VCR.



: Signal flow

If your VCR or TV is a monaural type

Connect only the white plug for audio on both the camcorder and the VCR or the TV. With this connection, the sound is monaural.

To connect to a VCR or TV without Video/Audio input jacks

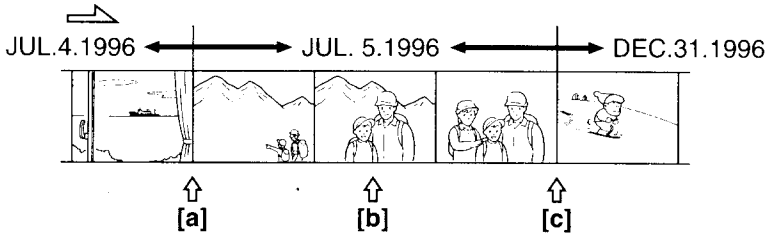
Use the RFU-95UC RFU adaptor (not supplied).

Searching the boundaries of recorded date

– CCD-TRV81 only

You can search for the boundary between recording dates using the Data Code automatically recorded on the tape.
There are two modes:

- Searching for the beginning of a specific date, and playing back from there **(Date Search)**
- Searching for the beginning of all days, one after another, playing back about 10 seconds of each **(Date Scan)**



Each time you press DATE, the mode changes as follows:

Date Search → Date Scan → nothing

To search for the beginning of a specific date

(1) Set the POWER switch to VTR.

(2) Press DATE on the Remote Commander.

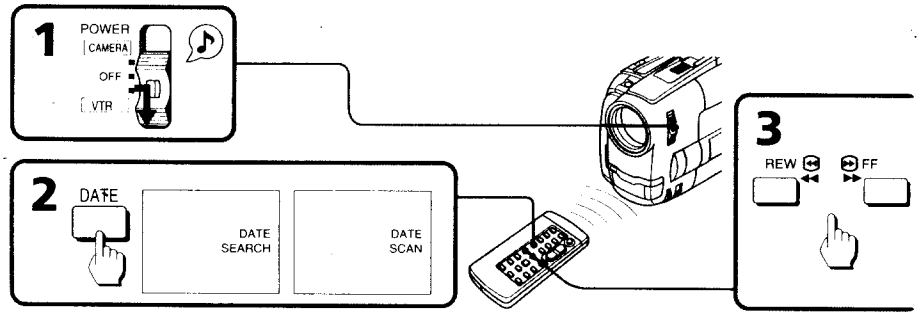
(3) When the current position is **[b]**, press ◀◀ to search towards **[a]** or press ▶▶ to search towards **[c]** .

To scan the beginning of all days

(1) Set the POWER switch to VTR.

(2) Press DATE on the Remote Commander twice.

(3) Press ◀◀ or ▶▶. Date Scan starts.



Searching the boundaries of recorded date

To stop searching or scanning
Press one of the following buttons: DATE, ►, ■, ◄◄ or ►►.

If you do Date Search or Date Scan during playback
While the camcorder is looking for the date, a fast forward or rewind picture is displayed. Some noise is inevitable.

If you have erased or rewritten the index signal
The point at which the date changes may be out of position by about 10 seconds of playback.

To view pictures during searching or scanning
Press ► and then press ◄◄ or ►►.

Notes on Date Search and Date Scan mode
- If a day's recording is not longer than 2 minutes, the camcorder may not accurately find its boundaries.
- Date Search and Date Scan do not function on a tape recorded by a camcorder without the Data Code function.

Returning to a pre-registered position

– CCD-TRV81 only

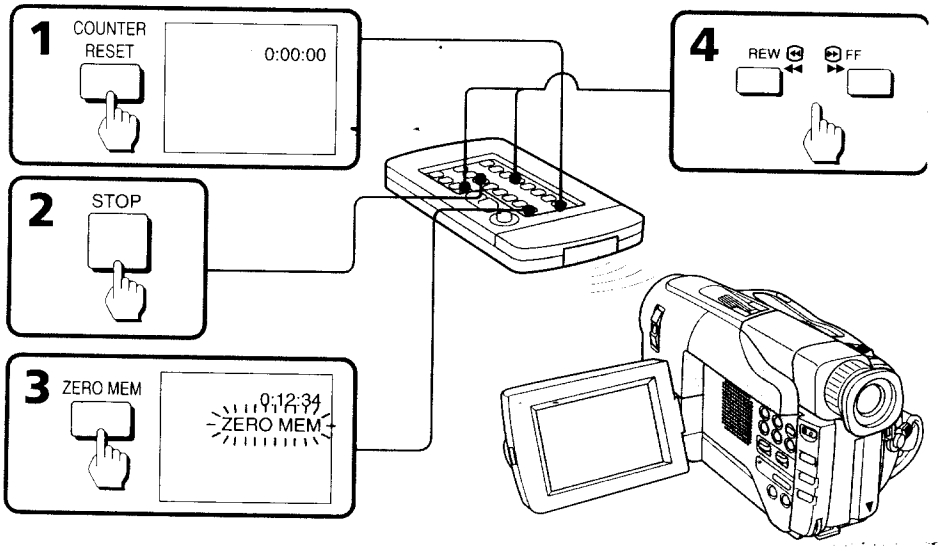
Using the Remote Commander, you can easily go back to the desired point on a tape after playback. Use the tape counter. If the RC time code appears, set COUNTER to NORMAL in the menu system to display the tape counter.

(1) During playback, press COUNTER RESET at the point you later want to locate. The counter shows "0:00:00".

(2) Press ■ when you want to stop playback.

(3) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.

(4) Press ◀◀ to rewind or press ▶▶ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero.



Notes on the tape counter

- Something must be recorded on the tape in order for the tape counter to function. Tape counter does not work on a blank tape.
- There may be a discrepancy of several seconds from the actual time.

Notes on ZERO MEM

- When you press ZERO MEM, the counter's zero point is memorized. Press ZERO MEM again before rewinding to cancel the memory.
- This function is canceled automatically once the tape is rewound or advanced to the point you pre-registered.
- You cannot set ZERO MEM during playing back.

Locating the marking position

– CCD-TRV81 only

You can locate the beginning of a desired program easily by marking an index signal during recording or playback and searching for it later.

Marking an index signal

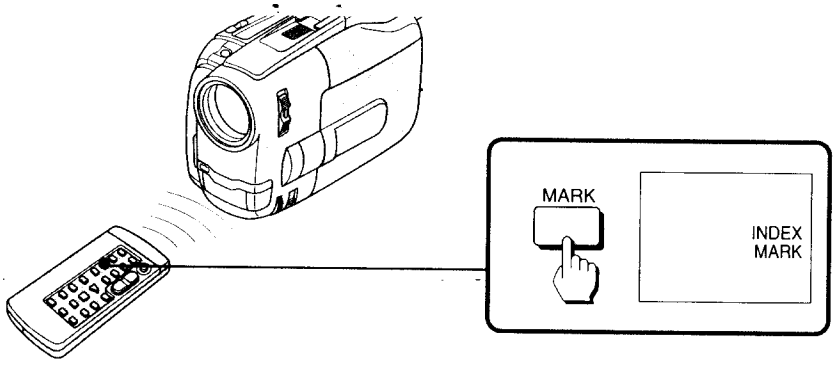
You can mark an index signal during recording or playback.

When marking at the beginning of recording or playback

Press INDEX MARK on the Remote Commander in recording standby or playback pause mode. The INDEX MARK indicator appears in the viewfinder or the LCD screen with the MARK indicator flashing. When recording or playback starts, the MARK indicator stops flashing. This shows that the index signal is being marked. Then the INDEX MARK indicator will disappear.

When marking during recording or playback

Press INDEX MARK on the Remote Commander at the point you want to locate later.



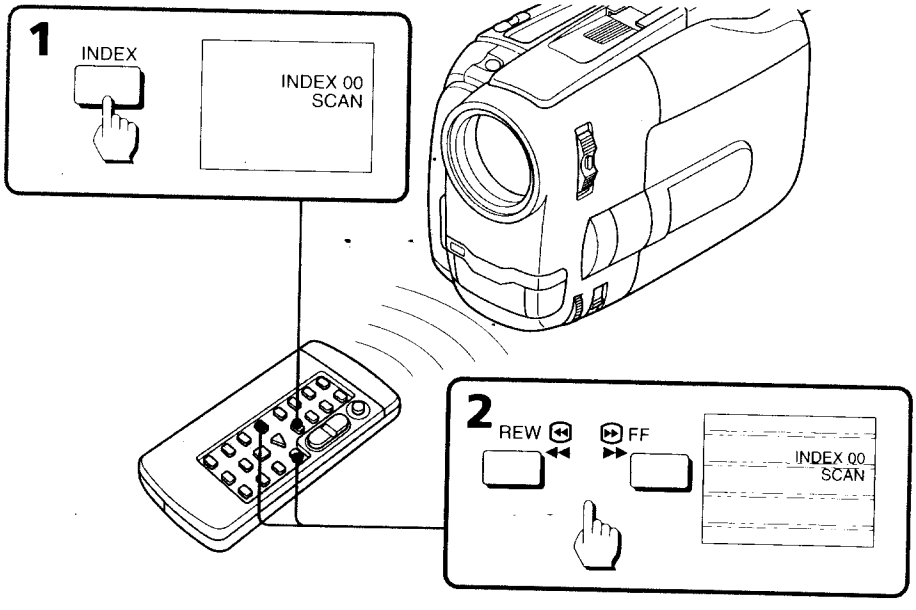
Notes on marking

- Make sure you mark index signals at more than two-minute intervals. Otherwise, you may not be able to search for them correctly.
- If you stop recording while the index signal is being marked (the INDEX MARK indicator lights in the viewfinder), the search may not be completed correctly.
- If you mark an index signal on the tape with the Data Code recorded, the Data Code will be erased at the point on which the index signal is marked. When playing back this tape, the camcorder keeps displaying the Data Code immediately before the erased one.
- A black band appears when you mark index signal during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.
- You cannot mark an index signal on a tape with the red mark on the cassette exposed.
- An index signal is marked automatically when you start recording with the POWER switch to VTR. When you start recording from recording pause mode, however, and index signal is not marked.
- You cannot mark the index signal during 5-second recording, recording only while pressing the START/STOP button, or during fade-out.

Scanning the beginning of each marking position – index scan

(1) Press INDEX on the Remote Commander during normal playback.

(2) Press ◀◀ or ▶▶. The tape rewinds or advances rapidly and plays back for approximately 10 seconds from the point on which the index signal was marked. If you want to continue playback, press ▶. When you do not press any button, the tape is automatically scanned to the next program.



To cancel index scan mode

Press ▶. Normal playback resumes.

Locating the marking position

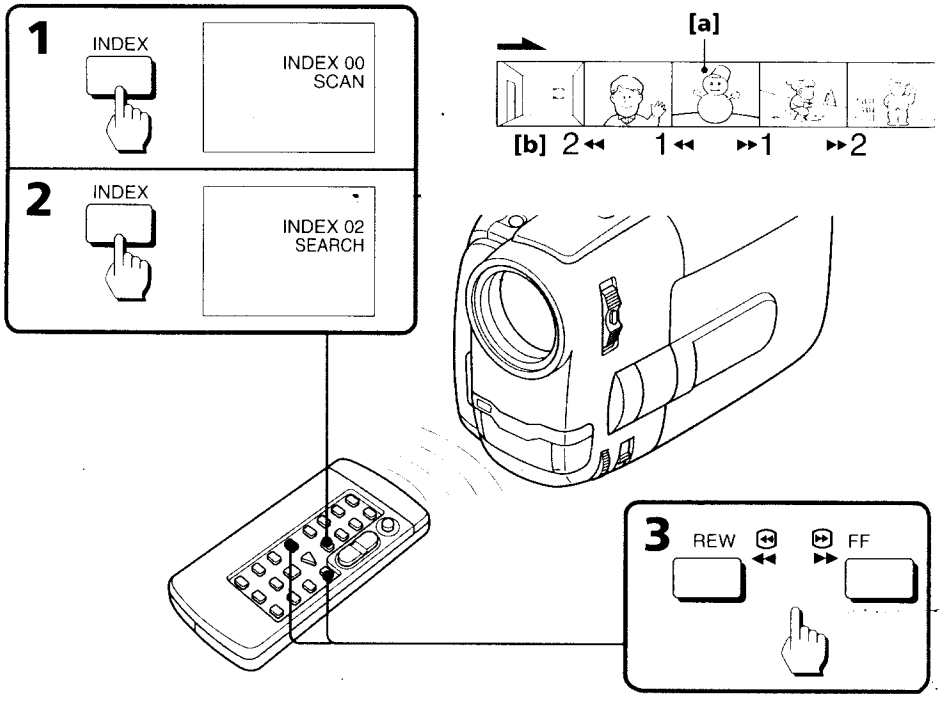
Locating the desired marking position – index search

(1) Press INDEX on the Remote Commander during stop or playback mode.

(2) Press INDEX repeatedly until the index number of the desired program is displayed in the viewfinder or on the LCD screen.

(3) Press ◀◀ or ▶▶. Playback starts from the beginning of the desired program.

[a] the current position
[b] the INDEX number



To stop index search mode

Press ▶. Normal playback resumes.

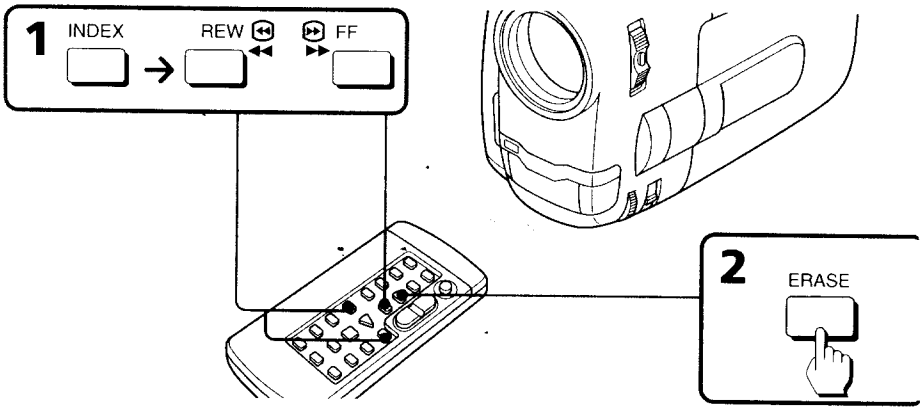
Note on the index number

The index number (1, 2, etc.) indicates the distance from the point you are now viewing **[a]**, regardless of the direction.

Erasing an index signal

(1) Locate the index signal to be erased using the index scan or index search function.

(2) Press ERASE on the Remote Commander within 2 to 10 seconds while the desired program plays back. After the index signal is erased, the camcorder returns to index scan or index search mode, whichever was used in step 1.



Notes on erasing

- Press ERASE more than 2 seconds after the playback of the desired program begins.
- You cannot erase the index signal on a tape with the red mark on the cassette exposed.
- While the index signal is being erased, the sound cannot be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.
- The camcorder can detect index signals marked with VCRs, but may not erase them. VCRs with an index function can detect index signals marked with this camcorder but may not erase them.
- An index signal may be erased when making PCM after recording on another VCR in the portion where the index signal is marked.

Note on Data Code

When an index signal is erased, the Data Code on the same portion of the tape is also erased.

Writing the RC Time code on a recorded tape

– CCD-TRV81 only

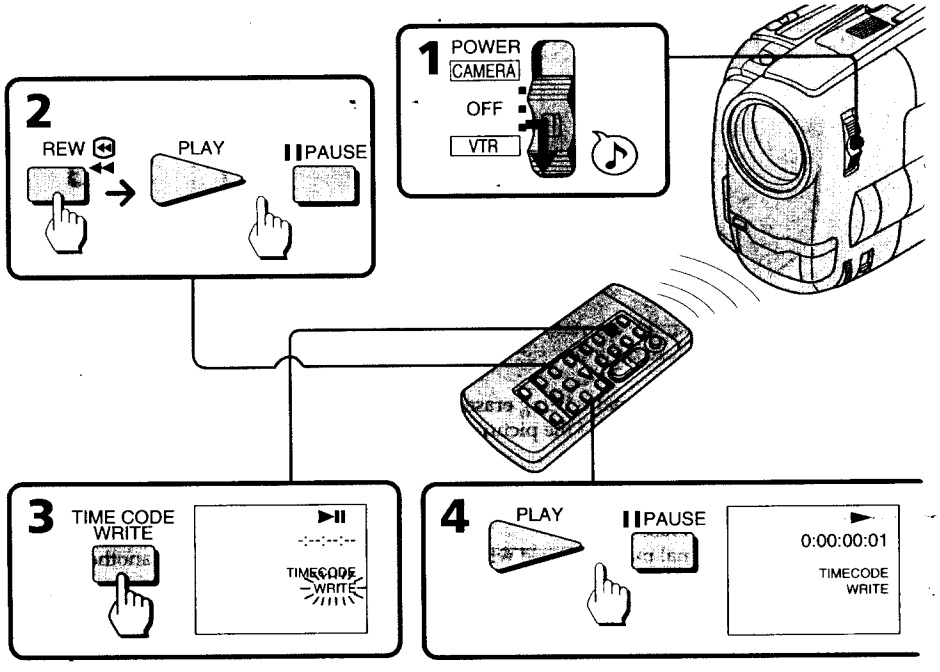
You can write the RC time code on a recorded tape. Use the Remote Commander. Before you begin, we recommend to set COUNTER to TIME CODE in the menu system so that you can view the RC time code.

(1) While pressing the small green button on the POWER switch, set it to VTR.

(2) Rewind the tape to the beginning and set the camcorder to playback pause mode.

(3) Press TIME CODE WRITE on the Remote Commander. The TIME CODE WRITE indicator appears in the viewfinder or on the LCD screen with the WRITE indicator flashing.

(4) Press ► or II to start playback. The WRITE indicator stops flashing and the RC time code writing starts from 0:00:00:00.



To stop writing the RC time code

Press ■ (or any video control button).

To write the RC time code from the end of the RC time code recorded portion

Rewind the tape to the portion on which the RC time code has been written and set the camcorder to playback pause mode. Then follow steps 3 and 4 above. The RC time code is written continuously.

Notes on writing the RC time code

- The RC time code writing stops when:
  - you press TIME CODE WRITE again before starting playback.
  - you press INDEX before starting playback.
  - you change from playback mode to another mode.
- When you are writing the RC time code from the middle of a tape without the time code written, writing starts several frames before the current picture.
- If you write the RC time code on a recorded tape, the Data Code is erased.
- Though you can mark the RC time code on a tape recorded both in LP mode and SP mode, the RC time code written in LP mode may not be read correctly.
- You cannot mark the RC time code on a tape with the red mark on the cassette exposed.
- A black band appears when you mark the RC time code during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.

Note on --:--:--:-- indicator

The --:--:--:-- indicator appears during playback if:

- nothing is recorded.
- the RC time code is unreadable because of the damage of the tape or because of the noise.
- you recorded using another VCR without RC time code function.

The --:--:--:-- indicator may also appear on the LCD screen during variable speed playback.

Editing onto another tape

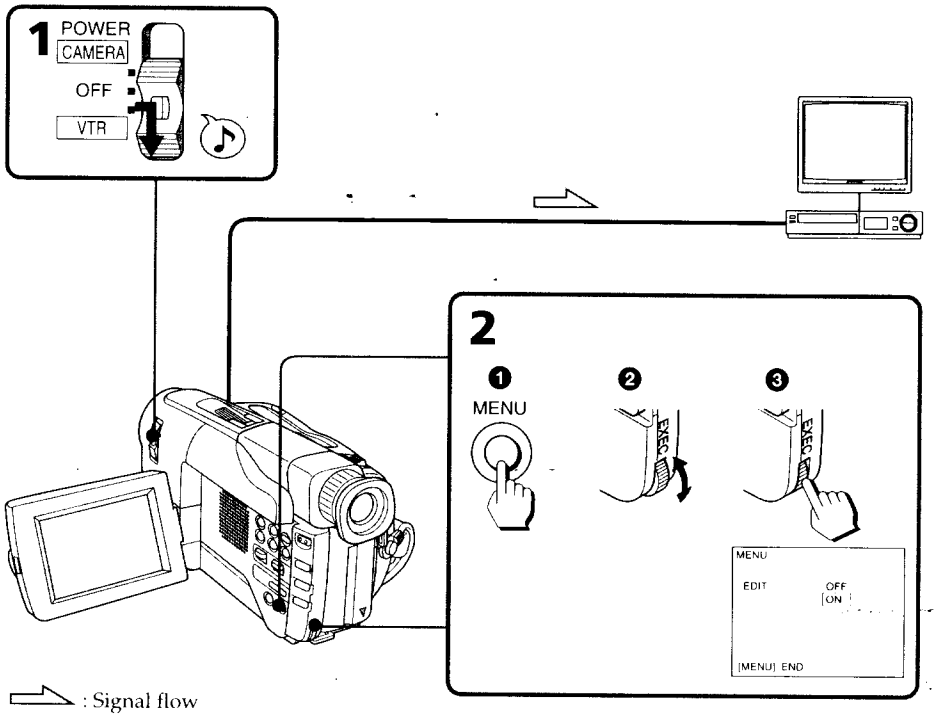
You can create your own video program by editing with any other 8 8 mm, Hi8 Hi8, VHS VHS, S-VHS S-VHS, VHSC VHSC, S-VHSC S-VHSC, β Betamax or ED Beta ED Betamax VCR that has video/audio inputs.

Before editing

Connect the camcorder to the VCR using the supplied AV connecting cable.
Set the input selector on the VCR to LINE, if available.

(1) While pressing the small green button on the POWER switch, set it to VTR.

(2) Set EDIT to ON in the menu system.



: Signal flow

Starting editing

Turn down the volume of the camcorder while editing. Otherwise, picture distortion may occur.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and inse your recorded tape into the camcorder.

(2) Play back the recorded tape on the camcorder until you locate the point wher you want to start editing, then press ❚❚ to set the camcorder in playback paus mode.

(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.

(4) Press ❚❚ on the camcorder and VCR simultaneously to start editing.

To edit more scenes

Repeat steps 2 to 4.

To stop editing

Press □ on both the camcorder and the VCR.

Note on Fine Synchro Edit

If you connect a video deck that has the Fine Synchro Edit feature to the LANC jack of the camcorder, using a LANC cable (not supplied), the edit will be even more precise.

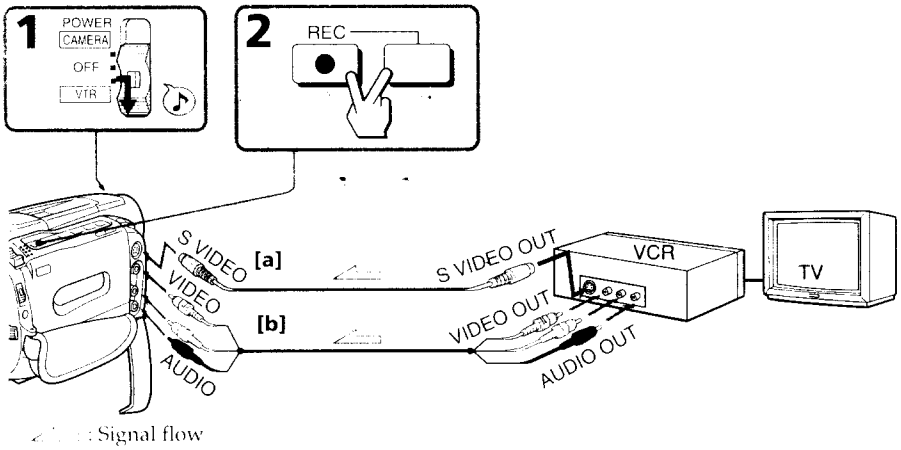
Recording from a VCR or TV

You can record a tape from another VCR or a TV program from a TV that has video/audio outputs. Connect the camcorder to the VCR or TV using the supplied A/V connecting cable. Turn down the volume of the camcorder while editing. Otherwise, picture distortion may occur.

(1) While pressing the small green button on the POWER switch, set it to VTR.

(2) Press ● REC and the button on the right together at the point where you want to start recording.

In recording and recording pause mode, S VIDEO and VIDEO/AUDIO jacks automatically work as input jacks.



: Signal flow

If your VCR or TV is a monaural type, connect only the white plug for audio on both the camcorder and the VCR or TV.
If your VCR or TV does not have an S VIDEO OUT jack, connect cable **[b]**. Do not connect the S video cable (not supplied) **[a]** to the camcorder.
The CCD-TRV41 does not have an S VIDEO jack.

To Check the Picture from a VCR or TV before Recording

Press ❚❚ after pressing ● REC. You can check the picture in the viewfinder or on the LCD screen.

To Stop Recording

Press □.

Replacing recording on a tape – Insert Editing

– CCD-TRV81 only

You can insert a new scene from a VCR onto your originally recorded tape by specifying starting and ending points.
Connections are the same as in "Recording from a VCR or TV".

(1) While pressing the small green button on the POWER switch, set it to VTR.

(2) On the VCR, locate the start point to be inserted and set it to playback pause mode.

(3) On the camcorder, locate the point where the insert should end by pressing ◀◀ or ▶▶, then press ❚❚ to set it to playback pause mode.

(4) Press COUNTER RESET to set the counter to zero.

(5) On the camcorder, locate the point where the insert should begin by pressing ◀◀, then press ● REC and ❚❚ to set it to recording pause mode.

(6) Press ZERO MEM. The ZERO MEM indicator flashes and the end point of the insert is stored in memory.

(7) Press ❚❚ on the camcorder and the VCR simultaneously to start insert editing.

The insert editing stops automatically near the zero point on the counter.

To change the end point

Press ZERO MEM so that the ZERO MEM indicator disappears and begin from step 3.

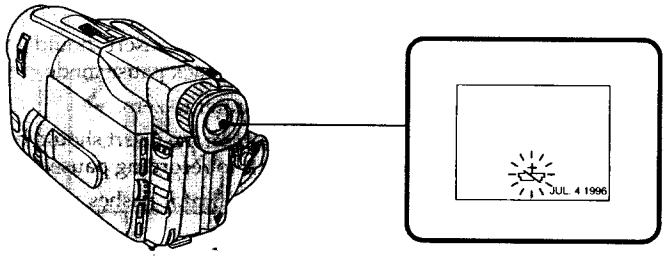
Note on the inserted picture

The picture may be distorted at the end of the inserted portion when it is played back.

Additional information

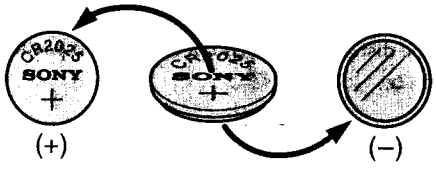
Changing the lithium battery in the camcorder

Your camcorder is supplied with a lithium battery installed. When the battery becon weak or dead, the ⚠ indicator flashes in the viewfinder for about 5 seconds when yo set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of any other battery may prese a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)



Note on lithium battery

The lithium battery has positive (+) side and negative (–) side as illustrated. **Be sure insert the lithium battery with the positive side facing out.**



WARNING
The battery may explode if mistreated. Do not recharge, disassemble, or dispose of ir fire.

Caution
Keep the lithium battery out of the reach of children. Should the batter be swallowed, consult a doctor immediately.

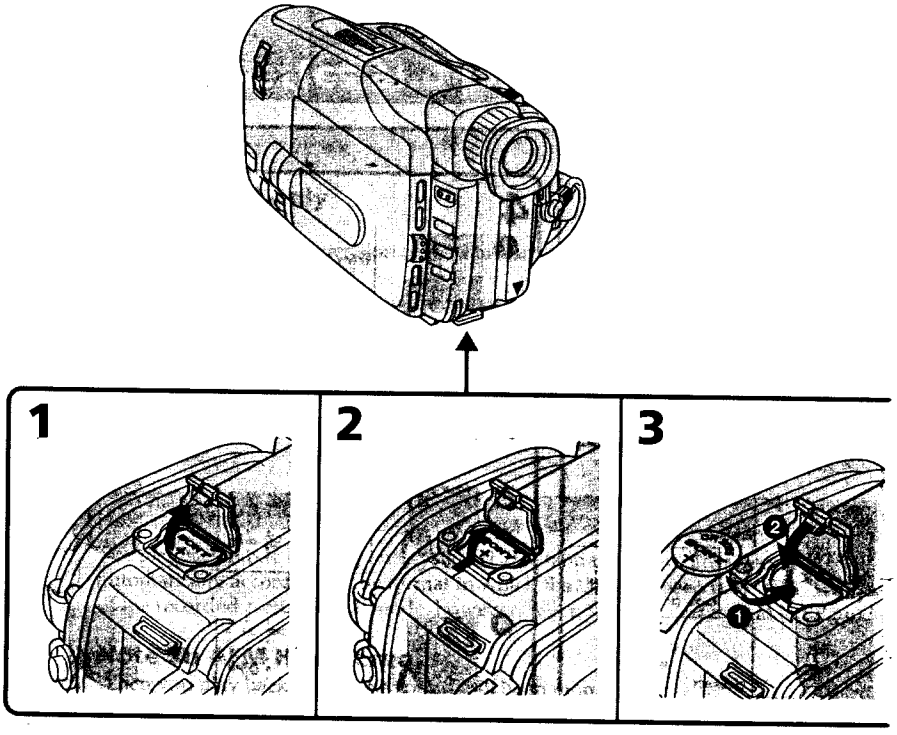
Changing the lithium battery

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the me system retained by the lithium battery.

(1) Open the lid of the lithium battery compartment.

(2) Push the lithium battery down once and pull it out from the holder.

(3) Install the lithium battery with the positive (+) side facing out. Close the li



Resetting the date and time

You can reset the date and time in the menu system.

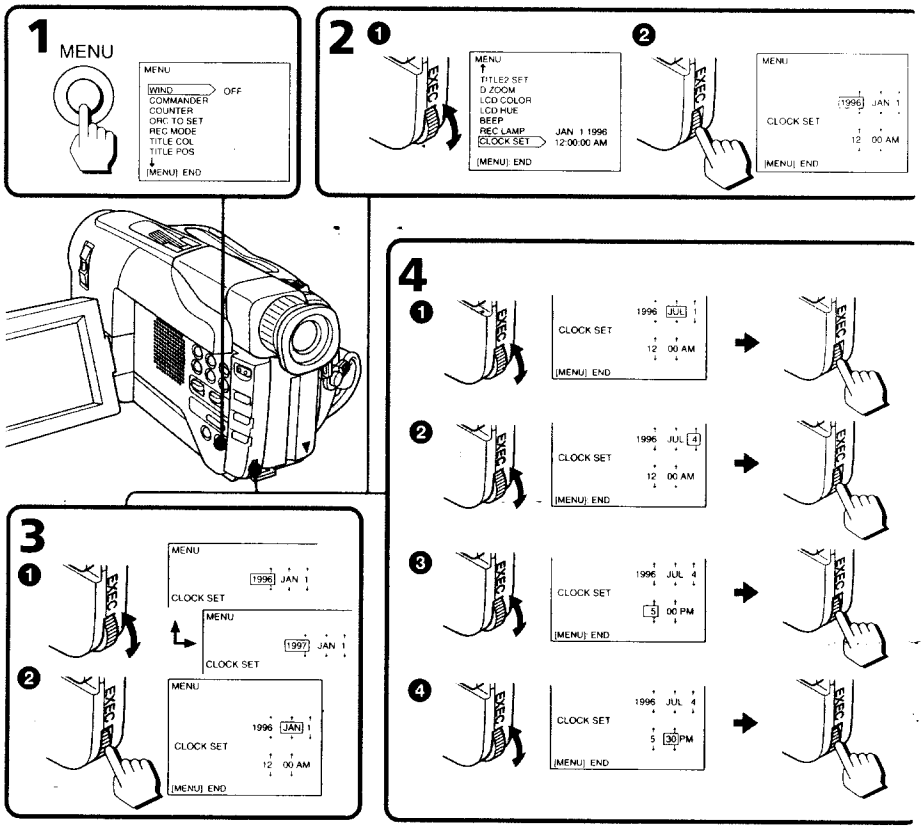
(1) Press MENU to display the menu.

(2) Turn the control dial to select CLOCK SET, then press the dial.

(3) Turn the control dial to select the desired year, then press the dial.

(4) Set the month, day, hour, and minutes by turning the control dial and pressing the dial.

(5) Press MENU to erase the menu display.



To correct the date and time setting

Repeat the above procedure.

To check the preset date and time

Press DATE to display the date indicator.
Press TIME to display the time indicator.
When you press the same button again, the indicator goes off.

The year changes as follows:

1996 ⟷ 1997 ⟵ · · · · ⟶ 2029

Note on the time indicator

The internal clock of this camcorder operates on a 12-hour cycle.

- 12:00 AM stands for midnight.
- 12:00 PM stands for noon.

Usable cassettes and playback modes

Selecting cassette types

– CCD-TRV81 only

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures.

You can use Hi8 video and standard 8 mm cassettes. When you use a Hi8 video cassette, the recording is in the Hi8 system. When you use a standard 8mm cassette, th recording is in the standard 8 mm system. You cannot record on standard 8 mm cassettes in the Hi8 system.

If you are going to play back the tape using a standard 8mm video recorder/player, you should use standard 8 mm cassettes.

When you play back

The playback mode (SP/LP) and system (Hi8/standard 8 mm) are selected automatically according to the format in which the tape has been recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

Note on AFM HiFi stereo

When you play back a tape, the sound will be in monaural if:

- You record the tape using this camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on this camcorder.

Recording mode

When you play back a tape, the SP/LP indicator shows the recording mode SP/LP.

Foreign 8 mm video

Because the TV color systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to the list of "using your camcorder abroad" to check the TV color system of foreign countries.

Tips for using the battery pack

This section shows you how you can get the most out of your battery pack.

Preparing the battery pack

Always carry additional batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment

Battery efficiency is decreased, and the battery will be used up more quickly, if you are recording in a cold environment.

To save battery power

Turn STANDBY down when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking through the viewfinder lens or on the LCD screen, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

When to replace the battery pack

While you are using your camcorder, the remaining battery indicator in the viewfinder or on the LCD screen decreases gradually as battery power is used up.
When you use "InfoLITHIUM" battery, the remaining time (minutes) appears before the remaining battery indication.

When the remaining battery indicator reaches the lowest point, the indicator appears and starts flashing in the viewfinder or on the LCD screen. When you use the NP-F530/F730 battery, the indicator may flash even if there are still 5 to 10 minutes of charge remaining.
When the indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, set the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced.

Notes on the rechargeable battery pack

Caution

Never leave the battery pack in temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern and is normal.

About InfoLITHIUM batteries

The InfoLITHIUM is a lithium ion battery pack which can exchange data with compatible video equipment about its battery consumption. Sony recommends that you use the InfoLITHIUM battery pack with video equipment having the (i) InfoLITHIUM mark.

When you use this battery pack with video equipment having the (i) InfoLITHIUM mark, the video equipment will indicate the remaining battery time in minutes*. However, if you use it with video equipment not having this mark, the remaining battery capacity will not be indicated in minutes.

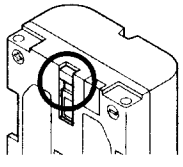
* The indication may not be accurate depending on the condition and environment which the equipment is used under. If the indication is not accurate, use the battery pack completely and then charge it fully. The indication will become accurate. However, the indication may not become accurate if you use or leave the battery pack in a warm place for a long time, or after you have used the battery pack many times.

Battery pack care

- **Remove the battery pack form the camcorder after using it,** and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

The switch on the battery pack

This switch is provided so that you can mark the charged battery pack. Set the switch to the "green mark" position when charging is completed. (When removed from the charging adaptor, the switch exposes the green mark. When removed from your camcorder, no mark is indicated.)



The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 50°F to 86°F (from 10°C to 30°C). Lower temperatures require a longer charging time.

Tips for using the battery pack

Notes on charging

A brand-new battery pack

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Notes on the terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.

When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

Notes on the Battery Case

- **Use only with alkaline batteries. You cannot use the battery case with manganese batteries or size AA (LR6) rechargeable NiCd batteries.**
- **Using with Sony alkaline batteries is preferable.**
- Battery life is remarkably shorter in a cold environment (lower than 50°F/10°C).
- Keep the metal part clean. If it gets dirty, wipe it with a soft cloth.
- Do not disassemble or convert the battery case.
- Do not expose the battery case to any mechanical shock.
- During recording, the battery case heats up. This is not cause for concern.
- Prevent the electrode in the battery case from coming in contact with a metal object.
- If you will not use the battery case for a long time, detach the battery case from the camcorder and remove the batteries from the battery case.

Notes on alkaline batteries

To avoid possible damage from battery leakage or corrosion, observe the following.

- Be sure to insert the batteries in the correct direction.
- Alkaline batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- The batteries slowly discharge while not in use.
- Do not use a battery that is leaking.

If battery leakage occurred

- Wipe off the liquid in the battery case carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

Maintenance information and precautions

Moisture condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the ◧ indicator flashes. If this happens, none of the functions except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour. The camcorde can be used again if the ◧ indicator does not appear when the power is turned on again.

On the lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.

(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator and "CLEANING CASSETTE" message appear one after another in the viewfinder or playback pictures are "noisy" or hardly visible, the video heads may be dirty.

[a] Slightly dirty
[b] Very dirty

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy," repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

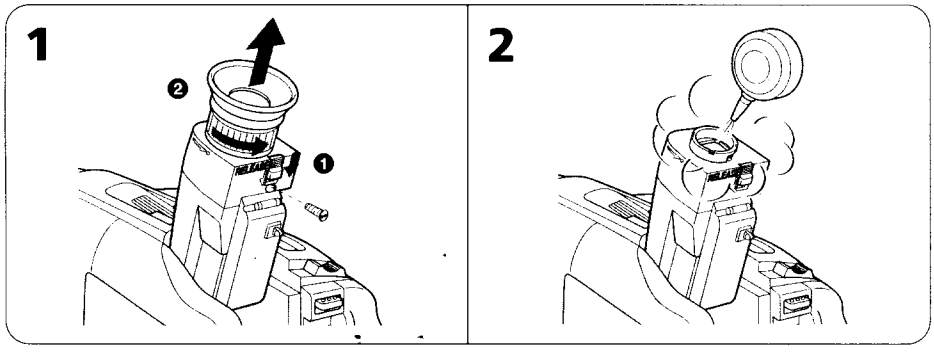
If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Maintenance information and precautions

Removing dust from inside the viewfinder

(1) Remove the screw with a screwdriver (not supplied). Then, while sliding the RELEASE knob, turn the eyecup in the direction of the arrow and pull it out.

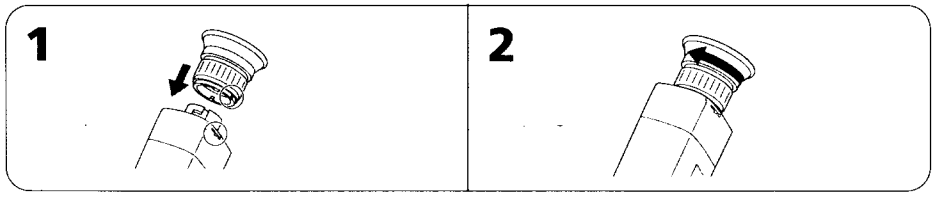
(2) Clean the surface with a commercially available blower.



To reattach the eyecup

(1) Align the groove on the eyecup with the • mark on the barrel.

(2) Turn the eyecup in the direction of the arrow. Then replace the screw.



Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- Do not push the LCD screen.
- If the camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using the camcorder, the back of the LCD screen may heat up. This is not a malfunction.

On handling tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is in or out.

Camcorder care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- If fingerprints or debris make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

AC power adaptor

Charging

- Use only a lithium ion type battery pack.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from the wall outlet when not in use for a long time. To disconnect the power cord, pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

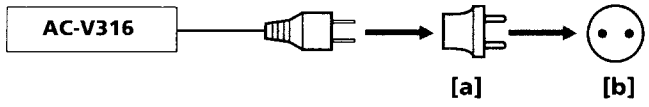
If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Using your camcorder abroad

Each country has its own electric and TV color systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.
Use a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet **[b]**.



Difference in color systems

This camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV.
Check the following list.

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Trouble check

If you run into any problem using the camcorder, use the following table to troubleshoot the problem. Should the difficulty persist, disconnect the power source and contact your Sony dealer or local authorized Sony service facility.

Camcorder

Power

Symptom	Cause and/or Corrective Action
The power is not on.	• The battery pack is not installed. → Install the battery pack. (p. 8) • The battery is dead. → Use a charged battery pack. (p. 6) • The AC power adaptor is not connected to a wall outlet. → Connect the AC power adaptor to a wall outlet. (p. 22)
The power goes off.	• While being operated in CAMERA mode, the camcorder has been in Standby mode for more than 5 minutes. → Turn STANDBY down once and then up again. (p. 10) • The battery is dead. → Use a charged battery pack. (p. 6)
The battery pack is quickly discharged.	• The camcorder does not operate when using a battery that is not an InfoLITHIUM battery. → Use an InfoLITHIUM battery. (p. 6) • The ambient temperature is too low. (p. 64) • The battery pack has not been charged fully. → Charge the battery pack again. (p. 6) • The battery pack is completely dead, and cannot be recharged → Use another battery pack. (p. 65)

Operation

Symptom	Cause and/or Corrective Action
START/STOP does not operate.	• The tape is stuck to the drum. → Eject the tape. (p. 9) • The tape has run out. → Rewind the tape or use a new one. (p. 17) • The POWER switch is set to VTR. → Set it to CAMERA. (p. 10) • The tab on the cassette is out (red). → Use a new tape or slide the tab. (p. 9)
Recording stops in a few seconds.	• The START/STOP MODE switch is set to 5SEC or ⏏. → Set it to ⏏. (p. 44)
The cassette cannot be removed from the holder.	• The battery is dead. → Use a charged battery pack or the AC power adaptor. (p. 6, 22)

(to be continued

Trouble check

Symptom	Cause and/or Corrective Action
⊡ and ⏏ indicators flash and no function except for cassette ejection works.	• Moisture condensation has occurred. → Remove the cassette and leave the camcorder for at least 1 hour. (p. 67)
The date or time indicator is flashing.	• You pressed DATE and TIME together for more than 2 seconds. → The camcorder is not malfunctioning. You may start recording. Flashing will stop soon. • The lithium battery is weak or dead. → Replace the lithium battery with a new one. (p. 61)
The tape does not move when a video control button is pressed.	• The POWER switch is set to CAMERA or OFF. → Set it to VTR. • The tape has run out. → Rewind the tape or use a new one. (p. 17)
The Steady Shot function does not activate.	• STEADY SHOT is set to OFF. → Set STEADY SHOT to ON. (p. 37) • The Steady Shot function does not work when the wide mode is set to.16:9 FULL.
The autofocusing function does not work.	• FOCUS is set to MANUAL. → Set it to AUTO. (p. 32) • Shooting conditions are not suitable for autofocus. → Set FOCUS to MANUAL to focus manually. (p. 32)
The fader function does not work.	• The START/STOP MODE switch is set to 5SEC or ⏸. → Set it to ⏸. (p. 44) • A title is displayed. → Stop superimposing the title. (p. 38)
No sound or only a low sound is heard when playing back a tape.	• The stereo tape is played back with HiFi SOUND set to 1 or 2 in the menu system. → Set to STEREO in the menu system. (p. 26)
Excessive high-pitched sound is heard.	• The picture has been recorded with WIND set to ON in the menu system. → When there is no wind, set it to OFF. (p. 25)
Data code becomes "--:--:--". (CCD-TRV81 only)	• You are playing back a portion of tape on which you wrote or erased the index signal. This is not a malfunction. (p. 50)
The date or time indicator disappears.	• Reset the date and time. (p. 62)

Picture

Symptom	Cause and/or Corrective Action
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 11)
A vertical band appears when a subject such as lights or a candle flame is shot against a dark background.	• The contrast between the subject and background is too high. The camcorder is not malfunctioning. → Change locations.

Symptom	Cause and/or Corrective Action
A vertical band appears when shooting a very bright subject.	• The camcorder is not malfunctioning.
The playback picture is not clear.	• EDIT is set to ON in the menu system. → Set it to OFF. (p. 26)
The picture is "noisy".	• The video heads may be dirty. → Clean the heads using the Sony V8-25CLH cleaning cassette (not supplied). (p. 67)
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel. (p. 13)
An unknown picture is displayed.	• The camcorder is operating in Demo mode. → Exit Demo mode. (p. 83)
The picture does not appear on the LCD screen.	• Incorporated fluorescent tube is worn out. → Please contact your nearest Sony dealer.

Others

Symptom	Cause and/or Corrective Action
The CHARGE lamp flashes after you charge the battery pack attached to the camcorder.	• The camcorder is not malfunctioning.
The supplied Remote Commander does not work.	• COMMANDER is set to OFF in the menu system. → Set it to ON. (p. 25) • Something is blocking the infrared rays. → Remove the obstacle. • The batteries are not inserted with the correct polarity. → Insert the batteries with the correct polarity. (p. 81) • The batteries are dead. → Insert new ones. (p. 81)
There is dust in the viewfinder.	• Detach the eyecup and clean the viewfinder lens. (p. 68)

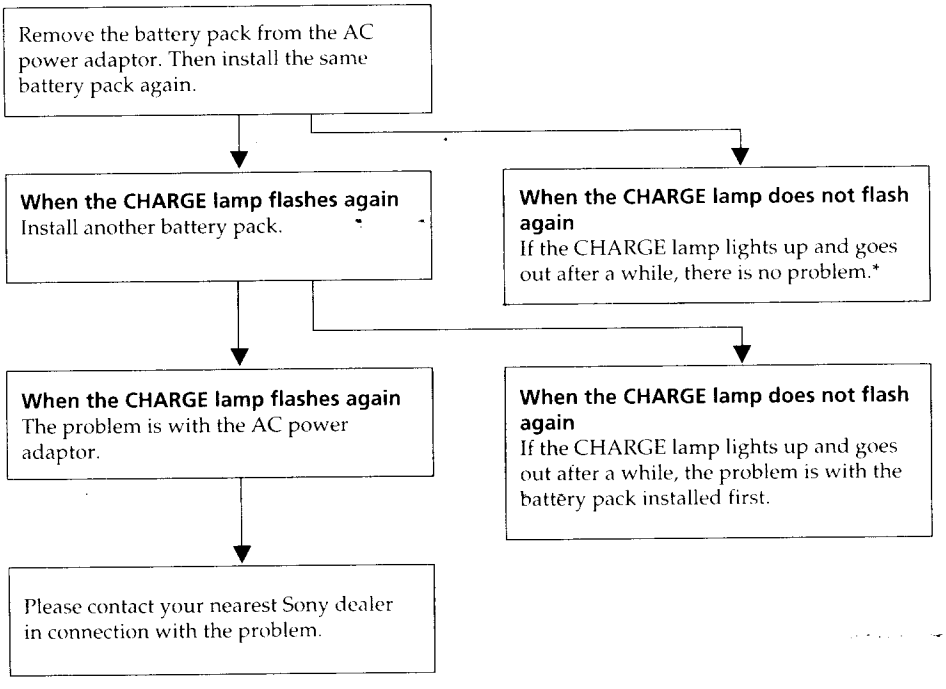
Trouble check

AC power adaptor

Symptom	Corrective Actions
The VTR/CAMERA or CHARGE lamp does not light.	• Disconnect the mains lead. After about 1 minute, reconnect the mains lead.
The CHARGE lamp flashes.	• See the following chart.

When the CHARGE lamp flashes

Check through the following chart.


Remove the battery pack from the AC power adaptor. Then install the same battery pack again.
When the CHARGE lamp flashes again
Install another battery pack.
When the CHARGE lamp does not flash again
If the CHARGE lamp lights up and goes out after a while, there is no problem.*
When the CHARGE lamp flashes again
The problem is with the AC power adaptor.
When the CHARGE lamp does not flash again
If the CHARGE lamp lights up and goes out after a while, the problem is with the battery pack installed first.
Please contact your nearest Sony dealer in connection with the problem.

* If you use a battery pack which you have just bought or which has been left unused for a long time, the CHARGE lamp may flash at the first charging. This does not indicate a problem. Repeat again to charge with the same battery pack.

Specifications

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
NTSC color, EIA standards
Usable cassette
8mm video format cassette
CCD-TRV41: standard 8
CCD-TRV81: Hi8 or standard 8
Recording / Playback time (using 120 min. cassette)
SP mode: 2 hours
LP mode: 4 hours (playback only)
Fastforward/rewind time (using 120 min. cassette)
Approx. 4 min.
Image device
CCD (Charge Coupled Device)
Viewfinder
Electronic viewfinder (Monochrome)
Lens
Combined power zoom lens
Filter diameter 1 7/16 inches (37 mm)
15 x (Optical), 30 x (Digital)
Focal distance
3/16 - 2 1/2 inches (4.1 - 61.5 mm)
1 9/16 - 23 1/8 inches (39 - 585 mm)
when converted to a 35 mm still camera
Color temperature
Auto
Minimum illumination
2 lux at F1.6
Illumination range
2 lux to 100,000 lux
Recommended illumination
More than 100 lux

LCD screen

Picture
CCD-TRV41:
3 inches measured diagonally
2 3/8 x 1 3/4 in. (59.5 x 43.2 mm)
CCD-TRV81:
4 inches measured diagonally
3 1/4 x 2 3/8 in. (80.7 x 58.9 mm)
On-screen display
TN LCD/TFT active matrix method
Total dot number
CCD-TRV41:
89,856 (384 x 234)
CCD-TRV81:
112,320 (480 x 234)

Input and output connectors

S video input/output (CCD-TRV81 only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω, unbalanced
Chrominance signal: 0,286 Vp-p, 75 Ω, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 Ω, unbalanced
Audio input/output
Phono jacks (2: stereo L and R)
327 mV, (at output impedance 47 kΩ) impedance less than 2.2 kΩ
RFU DC OUT
Special minijack, DC 5V
Headphone jack
Stereo minijack (ø 3.5 mm)
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Stereo minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 k (ø 3.5 mm)
Stereo type
Speaker
Dynamic speaker
Intelligent accessory shoe
8-pin connector

General

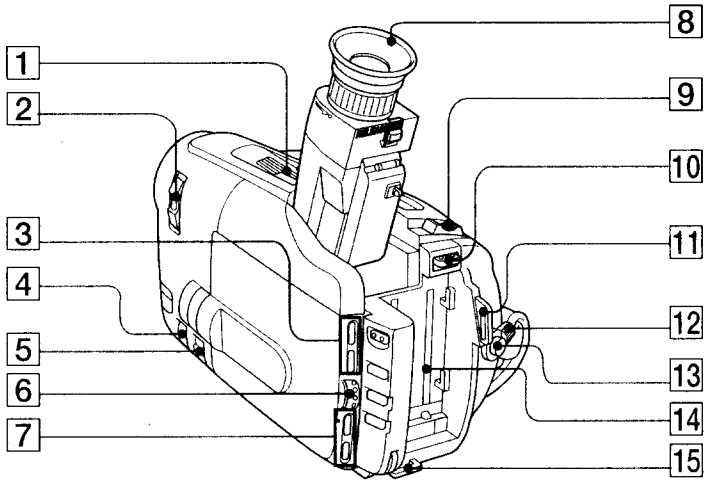
Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
During camera recording using LCD
CCD-TRV41: 5.4 W
CCD-TRV81: 6.1 W
Operating temperature
32°F to 104°F (0°C to 40°C)
Storage temperature
-4°F to +140°F (-20°C to +60°C)
Dimensions (Approx.)
4 1/4 x 5 x 8 in. (106 x 127 x 203 mm) (w/h/d)
Mass (Approx.)
CCD-TRV41:
2 lb 2 oz (970 g)
CCD-TRV81:
2 lb 3 oz (1.0 kg)
excluding the battery pack, lithium battery, cassette and shoulder strap
CCD-TRV41:
2 lb 7 oz (1.1 kg)
CCD-TRV81:
2 lb 8 oz (1.1 kg)
including the battery pack NP-F530, lithium battery CR2025, cassette and shoulder strap
Microphone
Stereo type
Supplied accessories
See page 5.

AC power adaptor

Power requirements
110 - 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730, lithium ion type
Operating temperature
32°F to 104°F (0°C to 40°C)
Storage temperature
-4°F to 140°F (-20°C to +60°C)
Dimensions (Approx.)
3 1/4 x 1 13/16 x 6 1/2 in. (81 x 45 x 163 mm) (w/h/d) including projecting parts and controls
Mass (Approx.)
1 lb 3 oz (560 g)

Design and specifications are subject to change without notice.

Identifying the parts



1 **Intelligent accessory shoe**

2 **POWER switch** (p. 10)

3 **LCD BRIGHT buttons** (p. 13)

4 **FAR/NEAR dial** (p. 32)

5 **FOCUS switch** (p. 32)

6 **OPEN button** (p. 13)

7 **VOLUME buttons** (p. 17)

8 **Eyecup**

9 **Power zoom lever** (p. 12)

10 **BATT (Battery release) lever** (p. 8)

11 **Hook for shoulder strap** (p. 79)

12 **STANDBY switch** (p. 10)

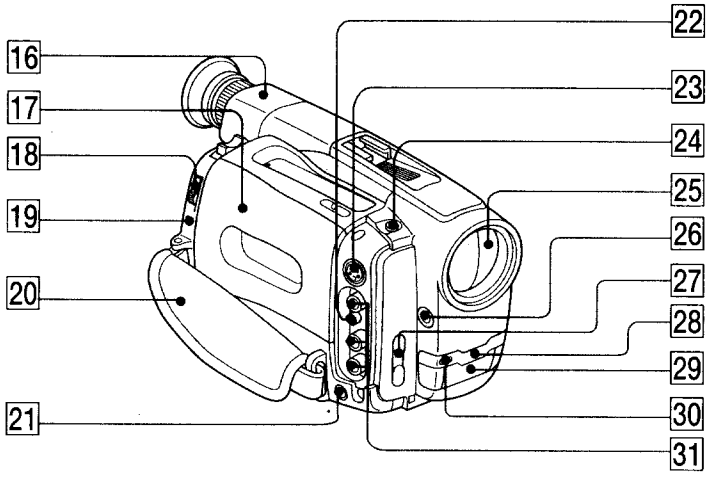
13 **START/STOP button** (p. 10)

14 **Battery mounting surface**

15 **Hook for shoulder strap** (p. 79)

Note on the intelligent accessory shoe

The intelligent accessory shoe supplies power to optional accessories such as a video light or microphone. The intelligent accessory shoe is linked to the STANDBY switch, allowing you to turn on and off the power supplied by the shoe. Refer to the instruction manual of the accessory for further information. To connect an accessory, press down and push it to the end, and then tighten the screw. To remove an accessory, loosen the screw, and then press down and pull out the accessory.



16 **Viewfinder** (p. 11, 68)

17 **Cassette compartment** (p. 9)

18 **EJECT switch** (p. 9)

19 **LANC ⏲ control jack**
⏲ stands for Local Application Control Bus System. The ⏲ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

20 **Grip strap** (p. 14)

21 **🎧 (headphones) jack** (p. 18)

22 **RFU DC OUT (RFU adaptor DC output) jack** (p. 46)

23 **S VIDEO jack** (CCD-TRV81 only) (p. 46)

24 **Front START/STOP button** (p. 15)

25 **Lens cover**

26 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.

27 **Front power zoom button** (p. 15)

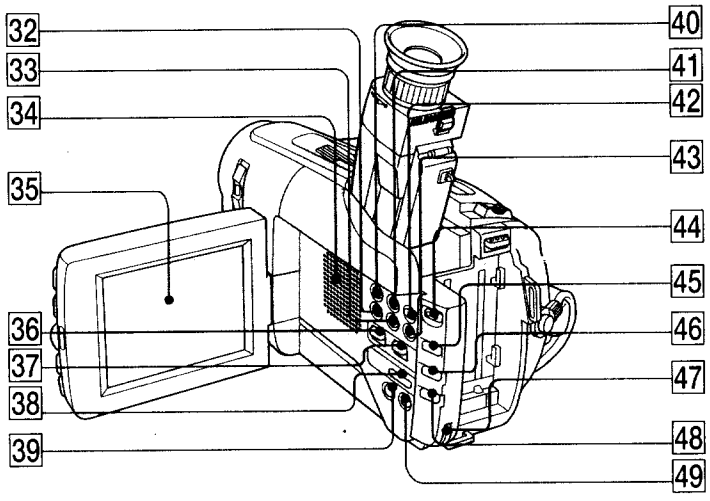
28 **Remote sensor** (p. 81)
Aim the Remote Commander here for remote control.

29 **Microphone**

30 **Camera recording/battery lamp** (p. 10)

31 **VIDEO/AUDIO jacks** (p. 46)

Identifying the Parts



32 **DATE button** (p. 20, 43)

33 **TIME button** (p. 20, 43)

34 **Speaker** (p. 17)

35 **LCD screen** (p. 13)

36 **STEADY SHOT switch** (p. 37)

37 **START/STOP MODE switch** (p. 44)

38 **PICTURE EFFECT button** (p. 31)

39 **TITLE button** (p. 39)

40 **DISPLAY button** (p. 18)

41 **END SEARCH button** (p. 21)

42 **16:9 WIDE button** (p. 29)

43 **COUNTER RESET button** (p. 11)

44 **FADER button** (p. 28)

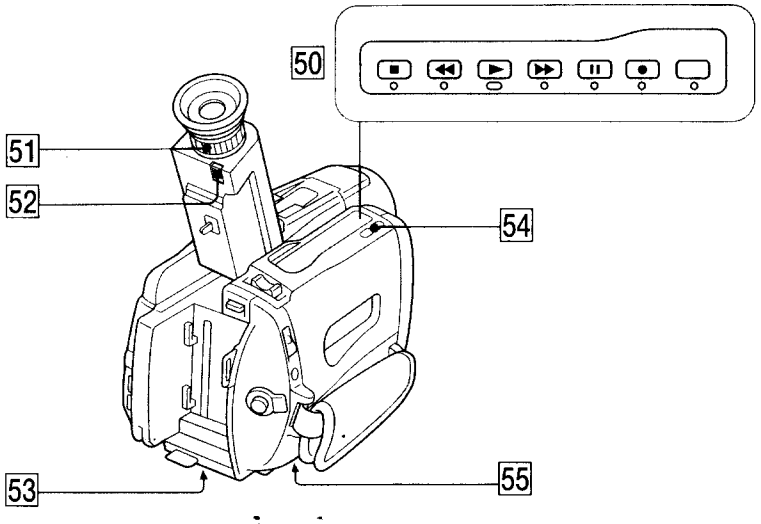
45 **BACK LIGHT button** (p. 35)

46 **PROGRAM AE button** (p. 34)

47 **Control dial** (p. 24)

48 **EXPOSURE button** (p. 36)

49 **MENU button** (p. 24)



50 **Video control buttons** (p. 17)
- □ STOP (stop)
- ◀◀ REW (rewind)
- ▷ PLAY (playback)
- ▶▶ FF (fastforward)
- ❚❚ PAUSE (pause)
- ● REC (recording)

51 **Viewfinder lens adjustment ring** (p. 11)

52 **Eyecup RELEASE knob** (p. 68)

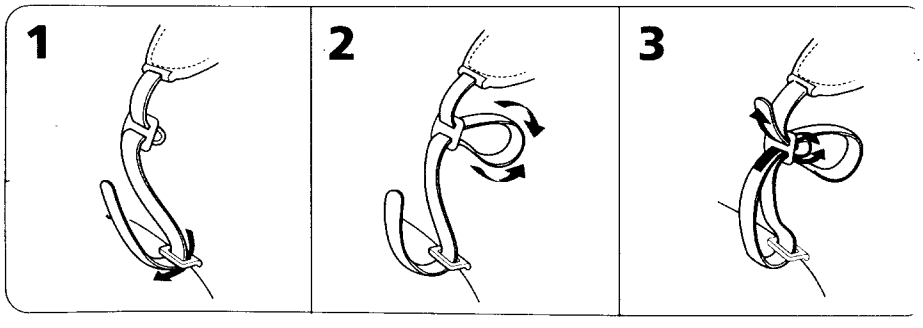
53 **Lithium battery compartment** (p. 61)

54 **EDITSEARCH button** (p. 16)

55 **Tripod receptacle** (p. 15)

Attaching the shoulder strap

Attach the supplied shoulder strap to the hooks for the shoulder strap .

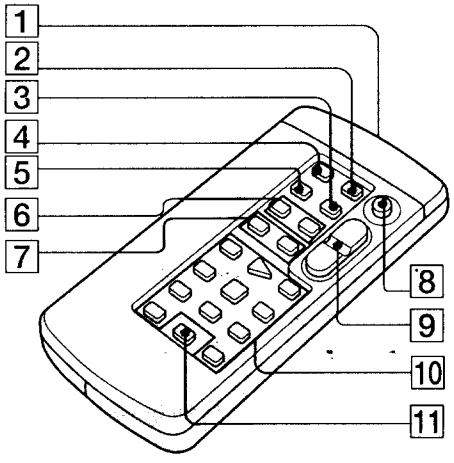


Identifying the Parts

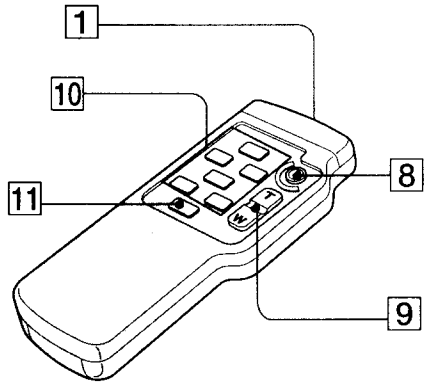
Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.

RMT-715



RMT-708



1 **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

2 **ZERO MEM button** (p. 42, 49)

3 **DATA CODE button** (p. 20)

4 **COUNTER RESET button**

5 **TIME CODE WRITE button** (p. 54)

6 **INDEX buttons**
INDEX MARK button (p. 50)
INDEX ERASE button (p. 53)

7 **DATE SEARCH button** (p. 47)
INDEX SEARCH button (p. 52)

8 **START/STOP button**

9 **Power zoom button**

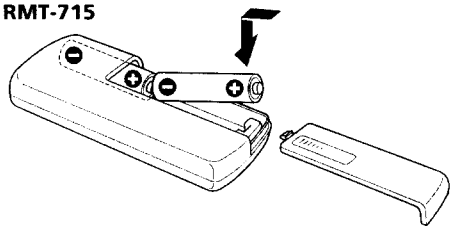
10 **Video control buttons**

11 **DISPLAY button**

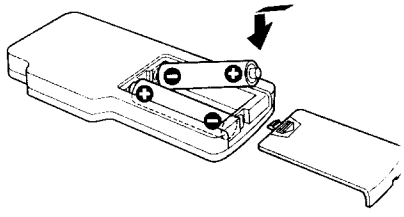
To prepare the Remote Commander

Insert two size AA (R6) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

RMT-715



RMT-708



Note on battery life

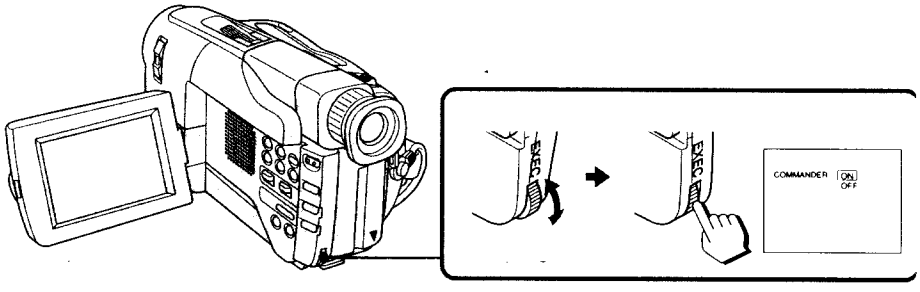
The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage

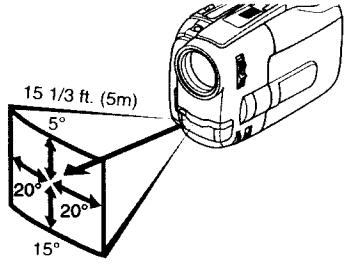
Remove the batteries when you will not use the Remote Commander for a long time.

To use the Remote Commander

Make sure that the COMMANDER is set to ON in the menu system on the camcorder.



Remote control direction

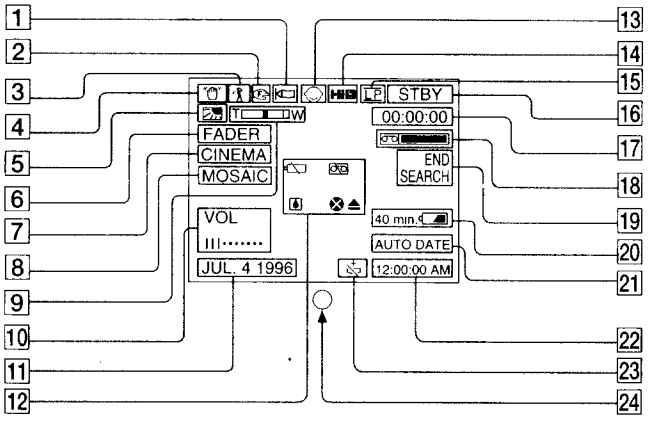


Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works in commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Identifying the parts

Operation indicators



1 **WIND indicator** (p. 25)

2 **Manual focusing** (p. 32)

3 **PROGRAM AE indicator** (p. 33)

4 **Steady Shot indicator** (p. 37)

5 **Backlight indicator** (p. 35)

6 **FADER indicator** (p. 28)

7 **Wide mode indicator** (p. 29)

8 **PICTURE EFFECT indicator** (p. 31)

9 **Exposure indicator** (p. 36)**/Zoom indicator** (p. 12)

10 **LCD BRIGHT indicator** (p. 13)**/VOLUME indicator** (p. 17)

11 **Data Code indicator** (CCD-TRV81 only) (p. 20)

12 **Warning indicators** (p. 83)

13 **Mirror mode indicator** (p. 27)

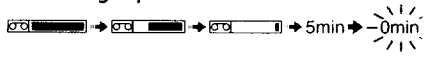
14 **Playing back or recording in Hi8 format** (CCD-TRV81 only) (p. 63)

15 **Lights up when recording or playing back a tape recorded in LP mode.** (p. 11, 63)

16 **Video control mode** (p. 17)

17 **Tape counter/RC time code indicator** (CCD-TRV81 only) (p. 49)

18 **Remaining tape indicator**



19 **Index indicator/Date search/Date scan indicator/TIME CODE WRITE indicator/ ZERO MEM indicator** (CCD-TRV81 only) (p. 47, 49, 54)

END SEARCH indicator (p. 21)

20 **Remaining battery indicator**

21 **AUTO DATE indicator** (CCD-TRV41 only) (p. 10, 12)

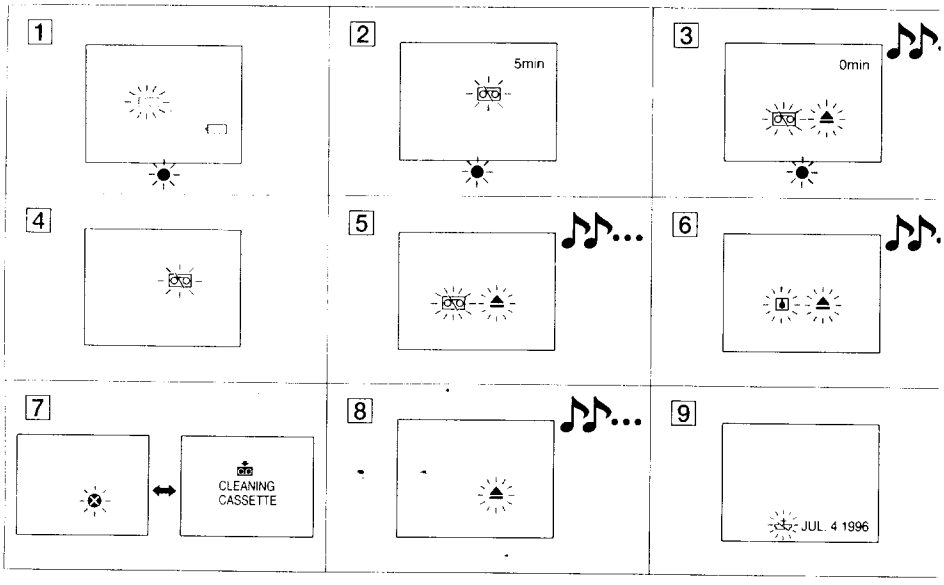
22 **Date or Time indicator** (p. 43)

23 **Lithium battery indicator** (p. 64)

24 **Recording lamp/Battery lamp** (p. 10)

Warning indicators

If indicators flash in the viewfinder or in the display window, check the following:
♪: you can hear the beep sound when the BEEP is set to ON.



1 The battery is weak or dead.
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 The tape is near the end.
The flashing is slow.

3 The tape has run out.
The flashing becomes rapid.

4 No tape has been inserted.

5 The tab on the tape is out (red).

6 Moisture condensation has occurred.

7 The video heads may be contaminated.
This indicator appears only on the viewfinder.

8 Some other trouble has occurred.
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 The lithium battery is weak or is not installed.

To watch the demonstration

You can watch a brief demonstration of pictures with special effects. If the demonstration appears when you turn on the camcorder for the first time, exit the Demo mode to use your camcorder.

To enter Demo mode

(1) Eject the cassette and set the POWER switch to OFF.

(2) Turn STANDBY up.

(3) While holding down ▷, set the POWER switch to CAMERA. The demonstration starts. The demonstration stops when you insert the cassette.

Note that once you enter Demo mode, this mode is retained as long as the lithium battery is in place. Therefore, demonstration starts automatically 10 minutes later every time you set the POWER switch to CAMERA, and after you eject the cassette.

To exit Demo mode

(1) Set the POWER switch to OFF.

(2) Turn STANDBY up.

(3) While holding down □, set the POWER switch to CAMERA.

Index

A, B

Adjusting viewfinder 11
AFM HiFi Sound 26, 63
AUTO DATE 12
Auto focus 32
Backlight 35
Beach & Ski mode 33
Beep 12

C, D

Camera recording 10
Charging battery 6
Cleaning video heads 67
Clock set 62
Connection 46
COUNTER RESET 11
Data code 20
DATE/TIME 43
Date scan 47
Date search 47
DEMO 83
Digital zoom 13, 25
DISPLAY 18
DNR 26

E

EDIT 26
Editing 56
EDITSEARCH 16
END SEARCH 21
Exposure 36

F, G, H

Fade-in/Fade-out 28
FADER 28
House current 22

I, J, K, L

Index 50
LANC 77
Landscape mode 33
Lithium battery 60

M, N

Manual focus 32
Menu system 24
MIC (microphone) jack 77

O, P

ORC 45
PICTURE EFFECT 30
Playback pause 18
Power sources 21
Power zoom 12
PROGRAM AE 33

Q, R

RC time code 54
Rec review 16
Recording mode 25
Remote control jack (LANC) 77
Reverse 18

S

Shoulder strap 79
Skip scan 18
Soft Portrait mode 33
Sports Lesson mode 33
Spotlight mode 33
Standby mode 10
STEADY SHOT 37
Sunset & Moon mode 33

T, U, V

Tape counter 11, 25
TBC 26
Time code 25, 54
Title 38
Tripod mounting 15
Trouble check 71

W, X, Y, Z

Watching on a TV 46
WIDE mode 29
WIND 25
Zero memory 42, 49
Zoom 12

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